

# ETA ENTERTAINMENT TECHNOLOGY ASIA

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Martin Audio MLAs and WPMs at the Japan Jam 2021. Photo courtesy of Martin Audio

**MARCH 2022**

## Deciphering Directivity

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STAR DIMENSIONS SHINES AT  
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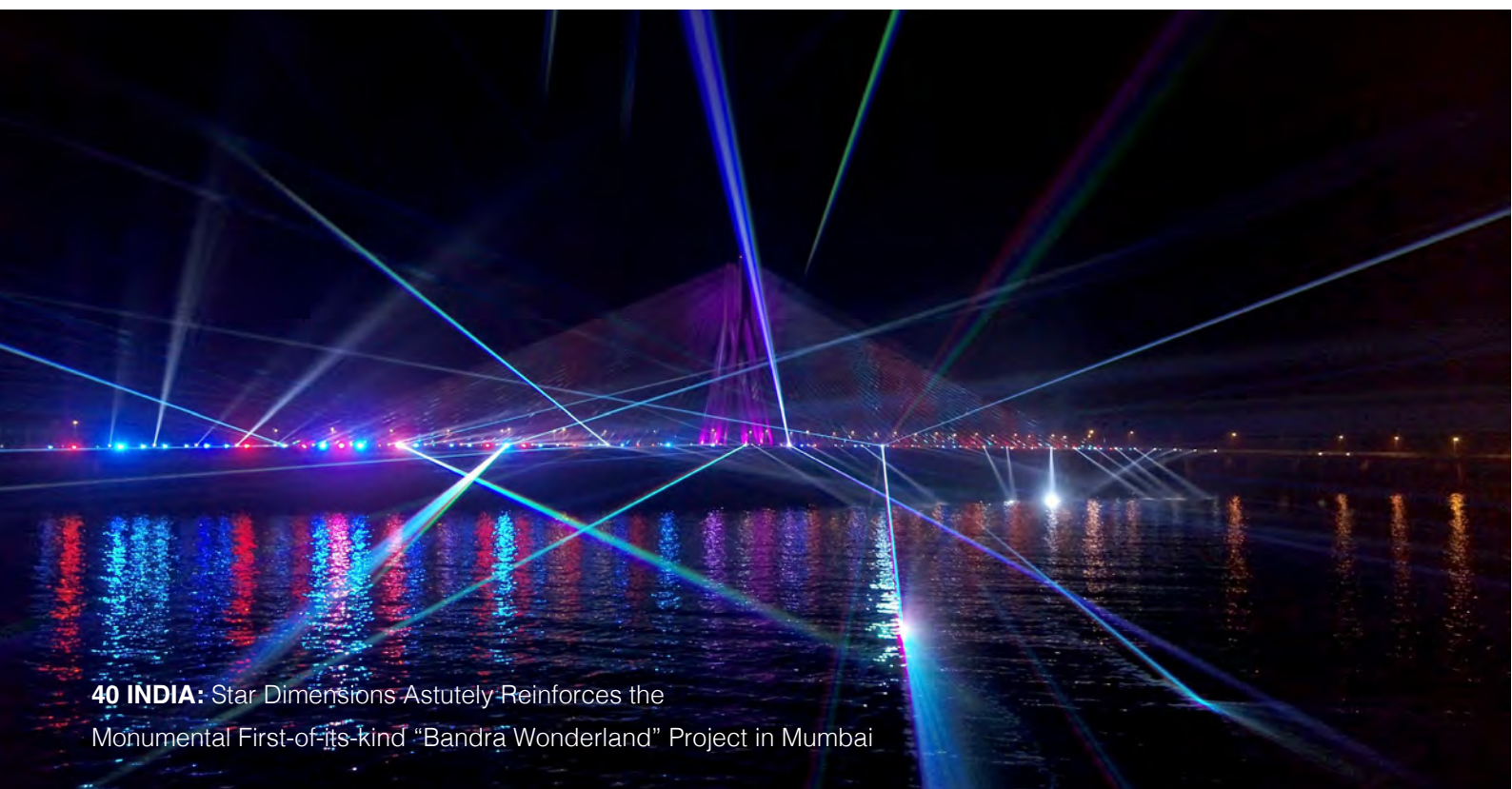
SPOTLIGHT: KHEMMANAT  
RUANGTHONGMUANG (Jay),  
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### 50 MARKET PLACE



This amazing industry continues to challenge itself technologically. One area that sees continuous development is in audio. It is truly impressive how manufacturers push the envelope to research and develop their solutions for an even better experience for the audience. In this issue we take a look at Sound Directivity in our Feature column. The evolution of

loudspeaker reinforcement solutions for live events has been a journey filled with crucial learnings that have contributed greatly to the advancement of loudspeaker design and deployment of present day. And though the size, shape, scale and complexity of loudspeaker systems has changed vastly over the course of time; the focus of loudspeaker manufacturer brands has always anchored on the capacity of their systems to provide the most optimal listening experience for the audience.

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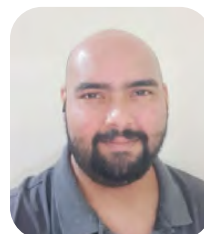
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Thinking. Inside the box.

# NEXO

## Proteus Supports Storytelling on Stunning UAE 50th National Day Celebration



**UAE:** Lighting Designer Bruno Poet recently turned to Elation Professional's Proteus line of IP65 luminaires to light the UAE's 50th National Day Celebration, a breathtaking and technically demanding show that beautifully chronicled the country's unique history and hopes for the future.

The ambitious Golden Jubilee spectacular took place in the remote and harsh terrain of the Hajar Mountains and was both technically bold and emotionally touching. Artistic Director and Designer was Es Devlin who worked with LarMac PROJECTS, the Official UAE 50th Celebration Producer. LarMac enlisted a team of 650 personnel to bring Devlin's vivid designs to life.

"Lighting National Day 50 was a thrilling challenge," lighting designer Poet commented. "Es Devlin's show design was a sculptural form in an unbelievably beautiful setting on the Hatta reservoir surrounded by mountains. The lighting had to bring this sculpture to life and support the storytelling. During the performance, the sun set and night drew in so it was important to light the

landscape to keep the mountains and the lake alive; it was essential to see the stunning environment we were performing in."

The vision, scale and spectacle of the Golden Jubilee show was nothing short of astounding. Centered on a giant rotating disc and sculpture floating in the waters of Hatta Dam, a major engineering feat in itself, the 36-minute show featured music and poetry, a dramatic light show with projection, drone-launched fireworks, and water displays, all wrapped in surround sound. PRG provided around 1,000 lighting fixtures for the show, including Elation Proteus Hybrid™ and Proteus Maximus™ luminaires. Surrounded by water and exposed to the elements, the fixtures had to perform amidst a challenging environment.

"The extreme conditions at Hatta, combined with the extensive use of water screens meant that I had to find lighting fixtures that could work reliably in extremes of heat and cold and under a regular deluge of water," Poet remarked. "The rig was in view of the audience so



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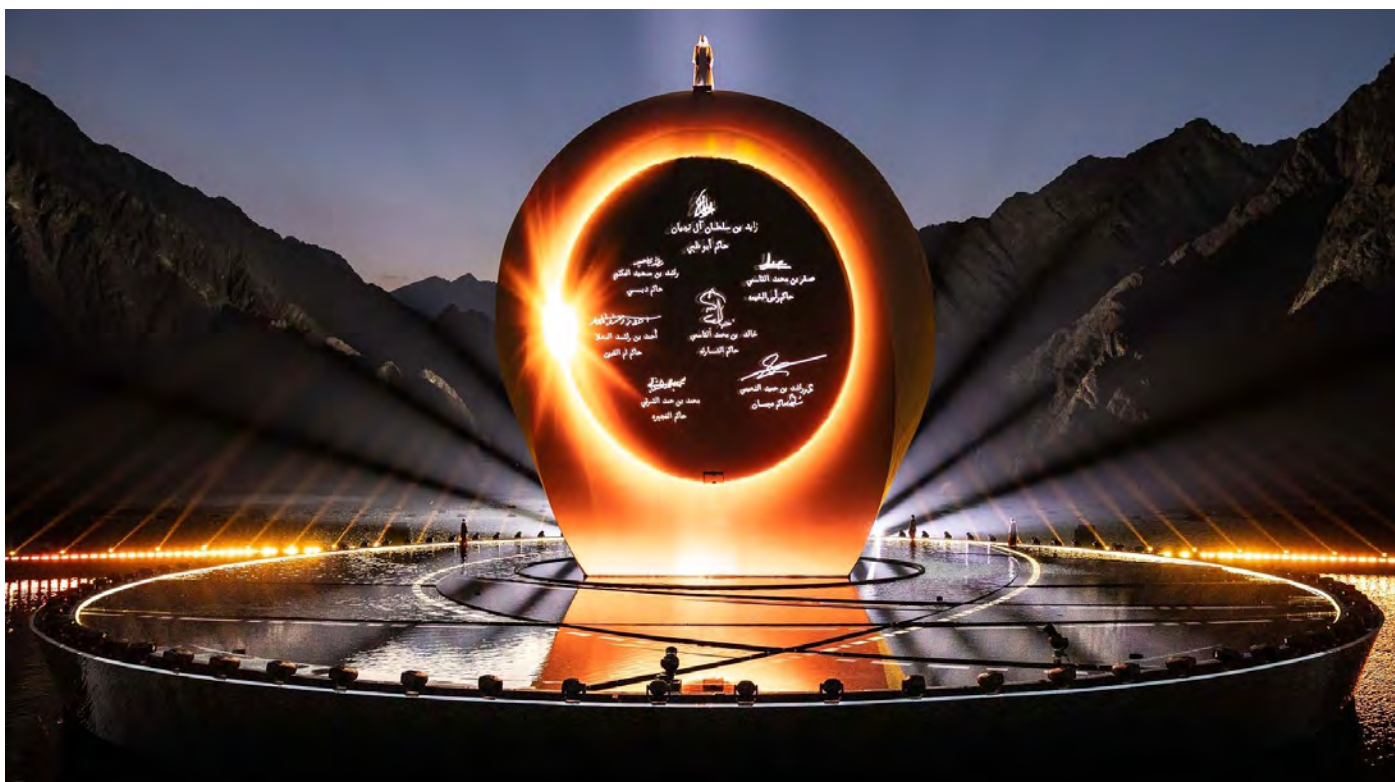


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it needed to look clean and neat - we didn't want to have to cover the units with domes or other waterproofing."

Poet says the size and scale of the venue meant that he needed very bright sources that would register in the vast landscape. It was also important, he says, to have a consistent quality of light across all sources. "Everything had to be symmetrical and exact - there was nowhere to hide. For this reason, and also to save power, I was keen to base the rig on LED sources." He continues, "In addition, the lights needed to deliver scale and spectacle in response to the sound track, magnifying the energy of the music, and framing the stage design with elegant, geometric and sculptural rays of light."

Poet and the lighting team used 100 LED-based Proteus Maximus plated around the perimeter of the elliptical performance area, and 108 Maximus and 56 Proteus Hybrids on the horizon arc walkway to frame the main set.

"The Elation Proteus Hybrid and Maximus were an obvious choice because of their IP rating," Poet said, although he adds that he felt he was taking a bit of a

chance as he had never used them before. "But I was blown away by the brightness, quality and reliability of the Elation Proteus Maximus - they worked consistently in unbelievably extreme conditions of heat, moisture, wind and dust. They were as bright as I had hoped, and had fantastic consistency of color and beam edge from unit to unit. They had the punch to work as narrow pencil beams to scythe through the air, but also the flexibility to make big wide sheets of light as well. They were truly remarkable units and there is no way we could have delivered the graphic air looks the production required without them."

The 50th National Day Celebration, which received widespread acclaim, will certainly go down as one of the more ambitious and visually impressive special events of the last many years. It debuted December 2, 2021, in front of a VIP audience and was broadcast around the UAE. Additional shows were performed from December 3-12.

*Photos: Nicolas Chavance*

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## Claypaky Mythos 2 Fixtures “Shine a Light” on the Marina Bay Singapore Countdown to the New Year



**SINGAPORE:** For the second consecutive year Singapore welcomed the new year with “Shine a Light,” an inspirational light display that illuminated the Marina Bay skyline and this year featured 60 Claypaky Mythos 2 spot and beam lights arrayed in a circular formation around The Promontory.

“Shine a Light” was part of the iconic Marina Bay Singapore Countdown 2022 presented by the Urban Redevelopment Authority (URA) in support of the Singapore Together movement. It is also a collaboration with local philanthropic organization The Majority Trust to raise funds for people struggling in the community.

The light display represented strength in diversity as Singaporeans supported one another during the pandemic. It also shone the spotlight on frontline workers, ground-up groups and charities meeting the needs of communities during these difficult times.

Each week in December “Shine a Light” was illuminated in a different colour to showcase a particular cause.

From December 29-31 the display was lit in magenta to represent the harmonious spirit of Singapore Together and celebrate the partnerships forged to create a caring, just and equal Singapore with opportunities for all.

Aux Media Group was responsible for the execution of the light display and chose 60 Claypaky Mythos 2 for the stunning display at the Promontory for their reliability and flexibility as both spot and beam lights. The sixty fixtures were positioned in a circular array of ten sections with six lights in each section. They were mounted inside third-party air-pumped outdoor enclosures to protect them from the elements.

“The performance of the fixtures was great as was the technical advisory support we received from Claypaky,” reports Choong Chyi Kei from Aux Media Group. “We had the chance to try out the various fixtures available in Singapore to decide what we could use; we hope to have a chance to use Claypaky Xtylos in some other projects.”



“It was a pleasure working with Claypaky for the last two years on ‘Shine a Light,’” he adds. “We hope to enhance our relationship to create more and better visual experiences in the years to come.”

In addition to the display at The Promontory, the “Shine a Light” campaign included a weekly roll out of activities and online content designed to spark conversations and create awareness of social issues while celebrating those working tirelessly on the ground. Funds raised through “Shine a Light” were channelled to grants for frontline workers, at-risk families affected by COVID-19, people living with dementia, youths struggling with mental health issues, migrant workers and other initiatives or charities meeting emerging needs.

[Claypaky](#)

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## Try Audio Provides Massive Outline's GTO System at Makuhari Messe Complex



**JAPAN:** The Japanese city of Chiba, which stands on Tokyo Bay and is famous among other things for having the world's longest suspended monorail system, recently hosted the first two days of **"uPI!!! Special Live Holic extra 2022"** (supported by Space Shower TV) in its huge Makuhari Messe complex. The event featured an impressive cast of sixteen key Japanese rock bands, including Androp, Straightener, Blue Encount and Orange Range.

Audio contractor was Try Audio Japan, who fielded an Outline sound system for the high profile live event. The two main hangs comprised 12 Outline GTO plus 3 Mantas (on downfill duty) per side, while side hangs consisted in 16 Outline Butterfly per side. Bottom-end punch was ensured by a center subwoofer system of 20 Outline DBS 18-2 dual 18-inch enclosures and lip-fills were 4 LIPF-082. The powerhouse featured a combination of Outline's T-Eleven and T-Seven power amplifiers.

FOH Consoles at the bands' disposal were a DiGiCo Quantum7, DiGiCo SD8, Yamaha CL5 and SSL SIX, while monitoring featured a Yamaha CL5 and a Midas PRO1.

Try Audio Japan's Tokihiko "Toku" Tokuda was system engineer at the Makuhari Messe shows and explains his

reasons for choosing the Outline equipment, "We chose Outline because it delivers a sound that can be clearly identified even in a large venue with considerable reverb, such as the Makuhari Messe hall. It's also very 'musical' and easy to mix, which makes it the ideal system for live performances, and this ease of mixing was also greatly appreciated by the bands' FOH engineers."

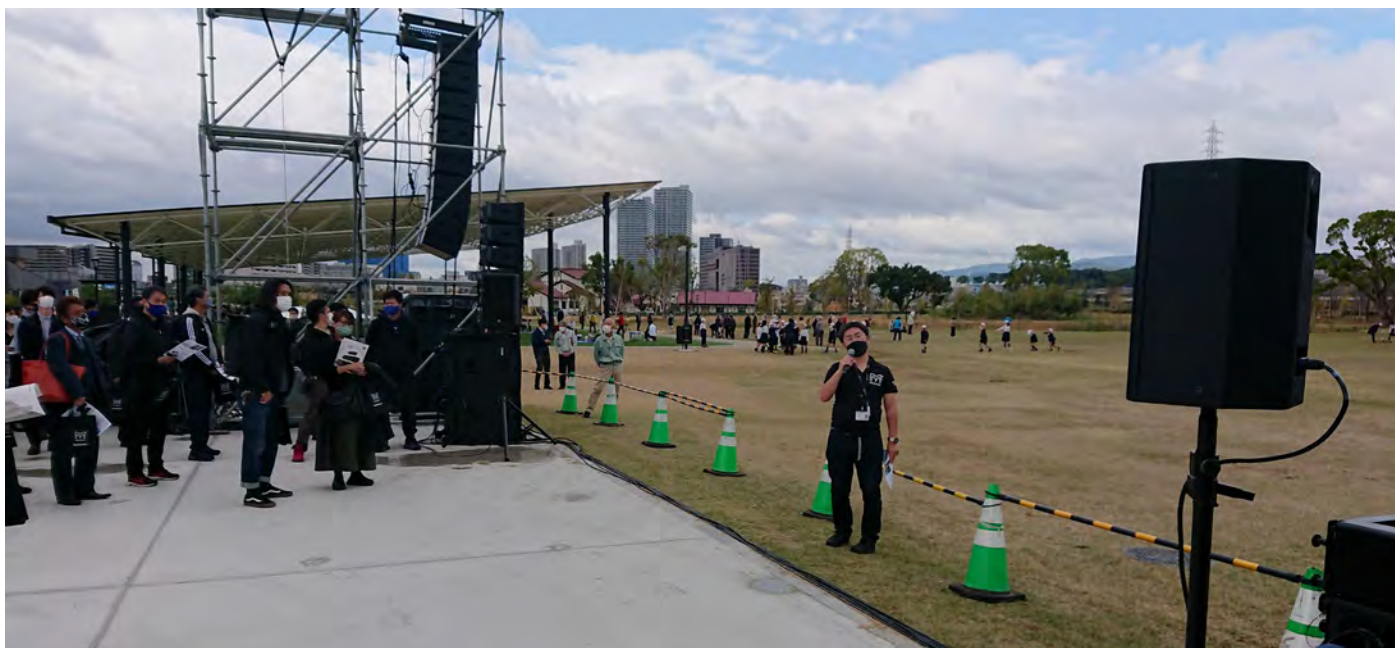
Since the FOH consoles were 60 meters away from the stage, Tokuda focussed his attention on how to make the mixing work from such a distance, and the important factor of ensuring a perfect balance between main and side hangs.

He explains, "We therefore used Outline's OpenArray 3D software to simulate the difference in sound between the front and the rear of the auditorium, and in my opinion this enabled us to achieve a great result. The client was also very satisfied with the results and after the event commissioned another job from us. The engineers also complimented me on the fact that they'd never been so easy to mix so well at the venue."

Try Audio is a well-known Japanese PA company supporting festivals and artists with their concert sound, not only in Japan, but overseas as well.

[Outline](#)

## Martin Audio Japan Moves Outdoors for Previously Postponed WP Series Demo



**JAPAN:** Martin Audio Japan (MAJ) recently staged an outdoor showcase demo at the ancient ruins of the Ama Site Park in Takatsuki, Osaka.

This park was newly opened in 2021, having refurbished the land that was previously used as a university campus. Now the park is open to everyone.

Martin Audio Japan had been unable to hold any demo showcases over the last 18 months due to COVID19 restrictions. Once the pandemic calmed down the company restarted its activity programme—and planned something special.

Director of MAJ, Sam Yamashita, explained the rationale. “Holding the demonstration outside ensured there would be sufficient space for the social distancing as well as fresh air. We had originally wanted to introduce WPL to customers back in 2019, but due to COVID it was postponed.”

In any case, he concluded that showing the capability of WPL to its optimum potential in the previous theatre context may not have been the best solution. “WPL has long throw capabilities that could not be properly

evaluated in a theatre. So, I had the idea that by holding the demonstration outdoors, it would solve both social distancing issues and give us the space to evaluate this powerful system to its full potential.” The event was extremely successful with more than 50 people in attendance. Everyone was smiling with satisfaction as they auditioned both the WPS and WPL arrays.

The MAJ crew knew that everybody had been frustrated by the COVID situation and wanted to listen to the music loud. “Having them enjoy the music so much was a pleasure for the MAJ team as well,” acknowledged Yamashita.



Martin Audio

## New Delhi's Chawla Movies Expands Inventory with DiGiCo SD10, grandMA3 and Martin RUSH MH7 Hybrid



**INDIA:** New Delhi based Chawla Movies – one of north India's most renowned audio visual and lighting equipment rental service provider for live events of all scales and applications – has expanded their inventory with the addition of top-of-the-line world class gear in the form of the SD10 mixing console system from DiGiCo, the grandMA3 lighting system from MA Lighting, and over 50 units of the RUSH MH7 Hybrid lighting fixture from Martin Lights by Harman.

Commenting about the investments, **Ajay Chawla – Director of Chawla Movies** elaborates, “Last year was a rigorous test of our company's ability to navigate the pandemic crisis. We took our time to work out deeper and more meaningful decisions that would add value to our brand. As a young company entering a competitive marketplace, we knew that our inventory had to be stocked with powerful and dexterous systems that would further enhance functionality and flexibility, and be applicable to a varied client base. This line of thought formed the foundation of our purchase decisions.”

The cumulative investment was fulfilled at different stages over the past 6 months, with the rental company

procuring the DiGiCo SD10 system and the grandMA3 system from the brands' official Indian partner – **Hi-Tech Audio Systems**, and the RUSH MH7 Hybrid fixtures from **Apex Solutions**. Speaking about the addition of the DiGiCo SD10 system, Ajay informs that the company stocked two units of the DiGiCo SD9 console, and upgrading the inventory by investing into the SD10 came as a natural decision. “We approach things from an engineer's point of view, and try to provide solutions that will suit their individual needs in demanding real-world scenarios, whether that is headline touring, festivals or corporate project delivery. Maximum capability and functionality were key points for us, as we always strive to meet every possible technical demand of our clients. What we love about the SD10 (and Optocore SD rack) is that it has it all – massive sonic quality and an easy to use, intuitive, fully functional user interface. We believe the SD10 and SD Rack with all 32 bit mic preamp to be one of the best all-round packages available to the industry, offering the right balance of sound quality, versatility and all-round control, whether deployed at FOH or monitors” informs Ajay.



*Ajay Chawla – Director of Chawla Movies*

Investing into state-of-the-art lighting technology was also crucial for Chawla Movies, as Ajay informs that the company engages in servicing several large scale events and productions that demand world-class lighting performance, as he confirms, “The decision to purchase the grandMA3 was influenced by two factors, one of which is the fact that we are probably the leading user of MA lighting products here. The grandMA3 is a full size console with the kind of robust look and the screen layout that we desired. The console is designed to control all kinds of lighting types including conventional, moving lights, LEDs, video, media and can handle a significant number of presets, cues, pages, sequences and effects. It is undoubtedly a work-horse, and provides the perfect combination of power and physical size, while being versatile enough to suit even the most demanding productions. It’s compatibility with grandMA2 and grandMA3 software, along with the ergonomically optimized hardware were instrumental in reaffirming our decision to invest into this system.”

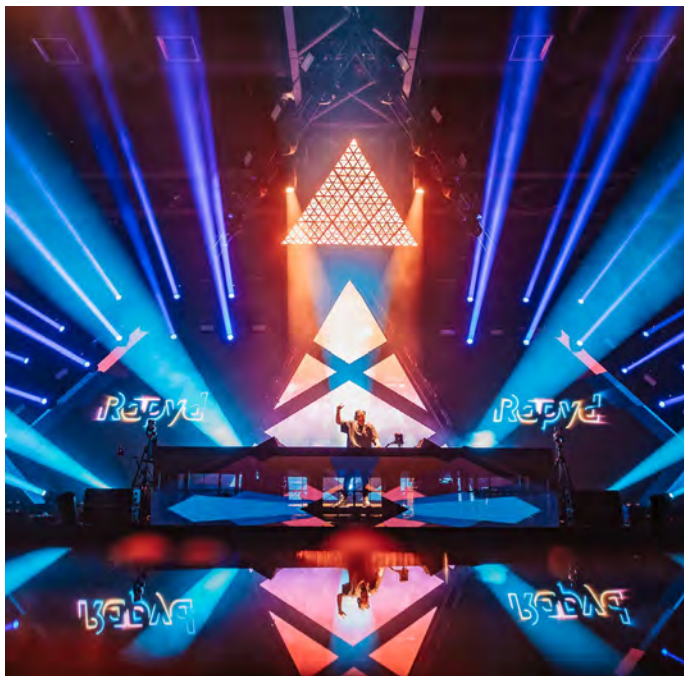
Ajay’s decision to bolster Chawla Movies’ inventory of lighting fixtures with the addition of the RUSH MH7 Hybrid too was influenced by factors similar to the purchase of the grandMA3 system, with him affirming that the company needed a line-up of more versatile high-performance fixtures that could be deployed seamlessly in tandem with their existing cache of RUSH MH3 beams. “With the Martin RUSH MH 7 Hybrid we

knew we’d be equipped with the ability to enjoy the features and capabilities of a beam, a spot and a wash moving head, all within one compact high performance unit. It’s class-leading sharp and crisp optics and the powerful zoom system would allow our designers to explore ranges from a smooth 45° wash to a punchy 2.2° beam, and thus make it perfect for the widest variety of applications, be it high energy music gigs or subtle, classy and more professionally driven events. Plus, with the fixture being from the same RUSH family of products from Martin Lighting, we knew it would be a perfect fit to perform seamlessly along with our existing inventory of RUSH MH3 beams.”

Ajay confirms that since the respective purchases, Chawla movies have been deploying the gear on-field for a variety of events on a regular basis. “We’ve been using the DIGICO SD10 with robust Optocore system from the day it has been procured. Both the MA3 Full size and DIGICO SD10 complement each other really well on large shows where we’ve had to deploy a substantial technical infrastructure. The ease of operation and programming is really fun, and within minutes our team is ready to rock the show. And with the RUSH MH7 Hybrids in the mix – our team has successfully pulled a number of massive events that were sonically astounding as well as visually stunning!”

**Chawla Movies**

## LEAD Chooses Claypaky Fixtures for Rapyd's "The Moment" Showcase Event in Tel Aviv



**ISRAEL:** When Israeli tech giant Rapyd, which provides an API-based "fintech-as-a-service," hosted a dynamic company rooftop party in Tel Aviv, LEAD selected an array of Claypaky fixtures to pull off one of the most innovative show concepts of the year.

Tel Aviv-based Lighting and Stage Designers Omer Israeli and Dor Aichner, who are known as LEAD, utilized Claypaky Sharpy Beams, Mythos II and Scenius Unico fixtures for the event, which kicked off on the roof of Azrieli towers and concluded at Expo Tel Aviv. The fixtures were supplied and installed by Sincopa 2002 Ltd.

Headlined by international DJs like Tiesto, Martin Garrix, Armin Van Buuren, Nervo, Skazi and Infected Mushrooms, "The Moment" party celebrated Rapyd's employees and the amazing progress the start up has made this year, including doubling its valuation to \$2.5 billion.

Production company OTD Global was tasked by Rapyd to create an extraordinary, 10-day corporate event staged across Tel Aviv, including pop up parties, branded merchandise, drones and the massive

showcase party. A triangle motif, designed for "The Moment" initiative, proved to be a central element in the look of the party; it featured almost 12 hours of music at the main Azrieli towers location and at the after party at Expo Tel Aviv.

"The triangle element was reflected in the event layout, which featured a 250-meter triangular truss ceiling, the lighting arrangements, LED screens and a huge triangle made from 16 LED fixtures that were pixel mapped. This key element changed its angle and position above the stage through the evening," explains Omer Israeli.

He and Aichner selected 40 Claypaky Sharpy Beams, 48 Mythos II and 24 Scenius Unico fixtures to pull off the high-energy show, which "generated a huge amount of attention [by the public] and interest among potential employees," Israeli notes.

Israeli, Naor Bonomo, Andrea Beckerman, Erik Mahowald and Jacopo Ricci were the show's Lighting Operators; Dor Aichner operated the lasers.

[Claypaky](#)

## Showmakers Expands Adamson Inventory with S10 Investment



**INDIA:** Showmakers Event & Entertainment has strengthened its inventory with an investment in Adamson's S10 two-way, full range array cabinets. This new addition equips them to provide more flexible and scalable audio solutions for a wider variety of events.

Showmakers joined the Adamson Network in 2019 with the acquisition of E12 three-way line array cabinets and companion E219 subwoofers. Having been extremely impressed with its performance, the company decided to expand their inventory with 8 compact S10 array enclosures to serve their growing client base.

"The E-Series system has excelled every time we've used it, in every application," says Showmakers' Owner, Harry Kaushik. "The S10 is the perfect cabinet to round out our package. It is strikingly powerful and has the same intelligibility and sonic signature we've grown accustomed to with Adamson Systems. The quality of sound when transitioning from the E12s to S10s is super smooth and consistent throughout. The S10 is a perfect fill for the E-Series and brings forth the same musicality even when standing on its own."

The equipment was sold by Adamson distributor Stagemix Technologies.

[Stagemix Technologies](#)

[Adamson Systems](#)

## Analog Way Appoints Regional Channel Manager for South East Asia



**SEA:** Analog Way, world-leading designer and manufacturer of innovative image processing systems, is pleased to announce that Jez Lim has joined the company as Regional Channel Manager for South East Asia.

"I have worked with Jez in the past and I am looking forward to working with her again to build the Analog Way brand in South East Asia," says Guy de Souza, Analog Way's Vice President for Asia. "I am sure the experience she brings with her from the display industry will definitely contribute to our success."

At Analog Way, Jez Lim will be responsible for developing sales in South East Asia, with a primary focus on Singapore and Malaysia.

Jez Lim has a proven track record of sales, business and channel development. Before joining Analog Way, she was responsible at Leyard and Planar for display projects and sales for global key accounts in South East Asia and for opening and developing new sales channels.

Analog Way has dramatically expanded its footprint in Asia in the past months signing distribution agreements in several key markets. Its distribution network now includes Kinoton for Korea, Mixwave for Japan, Fioerx for China, Goldenduck for Thailand and Vietnam, V2 for Indonesia, Visual Contact for Singapore, EIS Technifra Solutions for India and Digital Media Technology (DMT) for Taiwan, Hong Kong and Macau. Analog Way will continue to focus on growing its presence and distribution network in the region.

[Analog Way](#)

## Elation Europe Welcomes Industry Veteran Jonas Stenvinkel to Global Sales Team



**GLOBAL:** Elation Professional is pleased to welcome experienced industry professional Jonas Stenvinkel to its European-based sales team. Jonas, a native Swede who works from a base in London, joined the growing Elation sales

department on March 1st and is tasked with overseeing some of the company's most important growth markets including Greece, Turkey, the Middle East, the Indian subcontinent, and Africa.

Jonas, a 20-year industry veteran, brings with him broad international sales and marketing experience and has a proven track record in leading sales teams to new goals and growth. He comes to Elation from a similar position at Ayrton. His industry journey began at Martin Professional in 2003, which included a 3-year assignment in Singapore as Managing Director for Martin's APAC office. He later moved to London to work for Harman International in a senior EMEA role.

"I'm very happy and excited to join Elation and its great team," Jonas comments. "Elation has a long and stable track record of producing reliable products that meet a variety of clients' needs and I couldn't be more excited to start this next chapter in my career."

Marc Librecht, Sales and Marketing Director at Elation Europe, commented, "The fact that we can welcome such an experienced professional like Jonas to our team speaks to our growing status in the industry and the opportunities our recent growth opens up for professionals in our industry. We are extremely happy to have Jonas on board and anticipate our sales team to benefit greatly from his industry connections and years of experience."

[Elation](#)

## Ayrton Appoints Sales Manager for Asia Pacific



**APAC:** Ayrton has expanded its international team with the appointment of Vijay Thaygarajoo as Regional Sales Manager for Asia Pacific. The appointment took effect as of 1 February 2022. Vijay brings over 10 years of industry experience in the region, working with Ayrton's local distributor

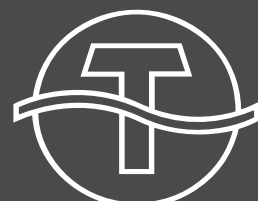
and as Regional Sales Manager for a number of industry manufacturers.

"I am very excited to be joining the amazing team at Ayrton," says Vijay. "I will be responsible for maintaining and building relationships with current distributors as well as appointing new distributors around the APAC region, with the aim of progressing and further strengthening the Ayrton brand and image in this part of the world."

"I've seen the quality of Ayrton lighting over the years and am very impressed with the full range of lighting fixtures they have. When the opportunity came along, I didn't think twice about joining them as I believe in the brand and couldn't wait to join the team. Ayrton is the future!"

"Vijay's experience makes him extremely well placed in his new role as our APAC Regional Sales Manager and a valuable addition to the team," says Ayrton's Global Sales Director, Michael Althaus. "To have our own regional representative working in tandem with our excellent local distributors is a great combination which will strengthen Ayrton's presence across the region and reinforce the level of service we are able to give our customers. We are very happy to have Vijay on the team."

[Ayrton](#)



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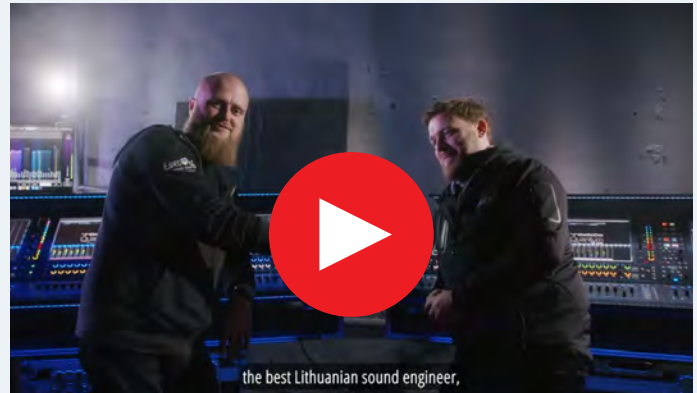
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## WELL STX by Chauvet Professional DiGiCo Quantum 338



WELL STX 180 and 360 feature an advanced combination of RGB and Warm White LED technology to produce superior, colorizing effects and high CRI whites that ensure skin tones and fabrics look optimal on camera. A variety of beautiful pixel-mapping effects can be accessed from its 16-pixel zones, which are equipped with DMX user definable auto programs to make programming a breeze. Whether used as a visual element, or to enhance area lighting, WELL STX 180 and 360 are sure to impress.



Join sound engineers Jurgis Stasikelis and Olegas Sklubovskis from Lithuania talk about why they love our consoles and what made them make the change to DiGiCo! Olegas has been using DiGiCo consoles for a year - but says he should have made the change earlier! Whereas Jurgis has been using our consoles for 6 years and has used a range of consoles from the S-Series and the Quantum range. No matter where you are in your career, what consoles you use - the move to DiGiCo is easy and worth it!

## ADJ Focus Profile



The brightest and most feature-rich Focus Series fixture to date, the Focus Profile is a professional caliber automated profile luminaire designed for theatrical, concert touring and event production applications. It features a potent 400W LED engine, with a native colour temperature of 6,700K and a CRI in excess of 70, coupled with an exhaustive collection of beam-shaping tools.

## Meyer Sound PANTHER Feature Animation



The new MG-PANTHER top grid for trouble-free rigging. A caster frame with anti-tipping forklift safety rails. Single and multi-point rigging options. IP55-rated, UV-resistant cabinet, and weather-sealing Neutrik TOP connectors keep out the elements — no rain hoods necessary. Taking advantage of the LYON footprint, PANTHER also works with many LYON accessories.

## Getting Back on Track



So, after 25 months of being shut down, we are all going back on track like nothing happened? It very much looks as if the global community has now decided that with the latest mutation of COVID-19 and the international vaccination rate, that it is safe for all, to open up again. We can see

different countries in Asia Pacific opening up at different speeds, but there is no denying, that things are coming back in some way, shape or form. On the bright side, this will also mean, that we will get to see each other in person again and not only through camera and screen.

I would like to use this opportunity to remind ourselves and to discuss a few things that we might consider useful for the future as well. Number one on my list is personal protection, health and safety and hygiene and number two is the same kind of protocol for all the gear that we are working with. Especially those of us who get real closed to artists, we should be particularly careful and what worked against COVID-19, will also work against the flu and other viral diseases. Maintaining a good hygienic practice, regular hand sanitizing (no, I don't have a deal with any hand sanitizer company) and other measures help keeping us all safe. And please do not forget to get your booster shots before going out on the road again, so that you can last and enjoy it too.

Second, I think that anything that might be exposed to droplets of spit or such as microphones, headsets, lavaliers, eltpacks, consoles, should be cleaned and sanitized regularly for the same reasons. In this regard it is important to remember that 70% Isopropyl alcohol works better than 100 %, because it just happens to stay on a little longer on the surface where applied, just so that all the germs and viruses can be captured and killed. This has become a permanent addition on my personal tool box in the past year.

Now let's dive in. I have found that the speed at which I can do stuff now, after a two year break, is much slower than before and this is quite frustrating for me, since time is always of the essence. I found that I spend more time on preparations and getting my gear and my setup ready in advance of any given show, so that there is less work on site, while there is plenty of other stress. I really try to do as much in advance now than before to keep the stress levels at a manageable level. I recommend that you spend time with your kit as much as you can, before taking it out for gigs.

I also expect that everyone that we will be working with, will be on a raised stress level for the foreseeable future, since everybody is worried and concerned about another lock down, another super spreader event or some other hick up. We will need to be more balanced and relaxed and the psychological aspect of our day to day work will stay strong for this period for sure. This requires us to spread calm and also to make sure that we are not falling victim to panic either. There are many ways of keeping calm and managing your own stress levels and you need to find out and learn what works best for you. For some, it is listening to their favourite music, for others, it is silence. Eating and drinking healthy is important and to get enough rest, at least as much as you can get, will help a lot as well.

In the hope that we can all leave this behind us now and that we have some lessons learned, both practically and also virtually, I wish that the next year will bring us back to enjoying doing our jobs, being able to make a living from it and that we don't have to learn from another bad story in any global event in the foreseeable future. Let's all practice what we have learned and all go the extra mile to make sure that wherever we are involved, things are safe and healthy. I wish you all some enjoyable time ahead and I very much look forward to seeing as many of you as I can in person in one of the open events in 2022, please stay safe and feel hugged (virtually still)...

**Join the conversation and share your thoughts with Alex. Alex can be reached at [alex@asaudio.de](mailto:alex@asaudio.de)**

## KV2 Debuts Powerful Large Format ESM312 Stage Monitor



The ESM312 is the latest – and most powerful – addition to KV2 Audio's range of high-quality stage monitors. Aimed at large scale stage monitoring applications, the ESM312 is a very high output full-range low profile 3-way, passive monitoring solution. With two bass reflex-loaded 12" neodymium woofers, a single horn loaded 6" mid-range woofer and a 1" compression driver in a compact, elegant Baltic birch cabinet, the ESM312 is truly one of the most impressive monitoring solutions on the market today.

KV2's most powerful stage monitor yet, the ESM312 delivers 133dB sustained output, and 136dB peak with very high dynamic range. A state-of-the-art 1" compression driver with a complex geometry phase plug and a neodymium magnetic structure ensures astonishing output for its size, exceptionally low distortion and extended frequency response. The ESM312 also features dual 12" woofers with sophisticated voice coil technology and neodymium magnetic motor structure for dramatically increased force, lower distortion and

increased frequency response linearity. It's ability to reproduce vocals is quite simply unmatched by anything else available on the market.

The compact, wedge-shaped design incorporates rear-mounted flip-out stands to allow for 35 or 45-degree angles as required. A specially designed acoustic fabric covering inside the grille protects against liquid spillage whilst a wear-resistant polymer coating is designed to withstand the rigours of touring and repeated stage use. An ergonomically designed recessed handle on each side panel facilitates handling and transport.

The ideal partner for KV2's flagship VHD5 system, the ESM312 can handle the largest stages with ease.

**KV2 Audio**

## PROLIGHTS Increases Moving Wash Range with Astra Wash37Pix



PROLIGHTS has released a fourth Astra moving wash, the largest in the series: the Astra Wash37Pix. This is a 37x 40W OSRAM RGBW fixture, with a wide zoom range of 4 to 54°, and capable of outputting nearly 18,000lm. Just like the Astra Wash19Pix, the bigger version comes with an external pixel ring for added pixel effects.

The fixtures have a newly designed and proprietary front lens and glass light rods, with exceptionally high optical efficiency across the entire zoom range. The lens technology is the same as the Astra Wash7Pix and Astra Wash19Pix, helping increase brightness and protecting from surface scratches, with anti-static properties to avoid dust deposits.

PROLIGHTS has released the Astra range with augmented pixel performance, supporting individual pixel control through DMX or ethernet-based protocols, or with the built-in pixel macros, personalized by the user, and designed to work seamlessly with the other Astra moving-washes.

The Astra Wash37Pix and newer models of the 7Pix and 19Pix come with W-DMX and CRMX transceiver protocols, allowing a wider array of Wireless DMX transmitters and receivers to work with these units.

Dimmer and colour parameters are integrated with 16-bit resolution, and CCT channels can be set to any precise white point and deviated by the tint channel on a +/- green chromatic coordinates. The tungsten emulation mode provides an incandescent tone of red shift when dimming. There is also a dedicated cross-fade channel to blend the white and colour macros.

The Astra fixtures were designed with a smarter cooling system and three fan settings, so you can use them in noise-sensitive environments. Despite their rugged look, they are extremely lightweight and easy to carry.

[Prolights](#)

## Claypaky Announces the Launch of Sinfonya Profile 600 Exclusively Designed for Theatre Applications



Claypaky announces the launch of its brand new, low noise LED based fixture exclusively designed for Theatre applications. Sinfonya Profile 600 is revolutionary and contains a host of new features that increase the performance levels dramatically on previous models on the market.

It is stylish, compact, and packed full of new technology. Theatres are demanding applications that require extremely low noise operation, very high quality of light and control along with precision of re-positioning. The Claypaky new range meets those needs and provides brand new levels of performance that were simply not possible before.

Most of the LED Theatre fixtures on the market have been mostly recycled from touring moving heads and adapted for theatre use. Not so with Sinfonya. This was a landmark decision and project to design the best fixture possible completely from scratch. Based on extensive customer feedback and input the team have

been working away and managed to create a beautiful fixture that outperforms the best on the market.

Compacting so much new technology into a new body was a challenge but it has been achieved with spectacular results. The goal was to have a discreet form factor that can be used both on lighting rigs in theatres but equally sits well in the small niches around the stage frame. These were previously difficult places to mount fixtures, mainly due to their size. Crucially, all these customer demands were incorporated in a stunning new product design that is sleek and modern. The precision of the beam control is amazing, offering outputs from 50 to 60° coverage on stage.

TONEDOWN is the product's flagship feature. Claypaky started with a fresh design to enable true silent operation on stage, achieved by redesigning the cooling system. Even at full output the noise is just 27db, a level impossible to achieve before. In addition to this, the fan has been taken out of the base. This reduces noise even further on stage and removes black noise from

other frequencies that can sometime be annoying. TONEDOWN is a feature that was impossible to achieve before and gives a huge scope for designers and theatre directors to incorporate stunning new choreography and performance aspects.

Another technology first for Sinfonya is the use of ACCUFRAME. A unique new framing system using two focal planes. We have used four planes ourselves for many years until our engineers discovered a new way to improve the performance. Saving time in programming and re-focusing was a key request from designers. Our team found a new way to do this and dramatically improve performance at the same time. It is 40 times more precise than traditional framing systems. This gives limitless scope and possibilities on stage.

Claypaky have designed a new proprietary Optical system that gives ultra-high efficiency and precision. By improving the performance, we can increase the aspect ratio to 1:12 giving us a true 5 to 60-degree beam angle potential on stage. This feature allows for a greater flexibility of use in large theatres and small ones where the low height may be an issue. Sinfonya can be used now in a wider variety of venues without loss of performance in the beam for white or colors.

Claypaky new, sophisticated firmware gives us precise control over the beam in our multicolor engine. This provides vibrant and rich colors optimized for the stage or TV with high CRI and TLCI levels. It's much simpler to install and operate saving time and controls the Sinfonya's five-color light engine precisely. More importantly the high control of the engine means the quality of light in the beam is exceptional. All this is possible thanks to the special firmware algorithm, developed internally by Claypaky.

Using the new Calibration feature in conjunction with the Claypaky CloudIO software you can easily align any fixtures on stage for a performance to the same light output and color temperature levels. Even older fixtures can have the color sampled and measured before being imported using the "digital filter option" and replicated in Sinfonya so that they all match perfectly to give unparalleled consistency on stage.

"We listened to the market and designed a new fixture just for them" says Product Portfolio Manager Giovanni Zucchinali. "It is the first pure theatre fixture for Claypaky, we wanted it to be special and we are thrilled with its performance" he says. "It definitely puts down a marker to the rest of the industry and to have a fixture with such smooth control at 30db is incredible, we are sure it will be welcomed by the market and can't wait to hear customer feedback".

Sinfonya includes a host of trademarked and protected technology that is seen across the Claypaky range. The "Absolute Position" of Pan and Tilt is the first on the market. This feature will save lots of time for designers on stage. Sometimes during a performance, a fixture in a series may need re-setting, it happens it's just life. This can be awkward and visible as the fixtures scrolls through its set up process to find its zero point and be able to join in again with the sequencing and performance.

"Absolute Position" is a massive step forwards in terms of lowering audience distraction because of a clever sensor in the head. This signals where the fixture is in the cycle meaning the audience do not see one fixture turning and swirling to distract them from the show as it tries to find the re-set point. This new system gives also a much higher precision in term of re-positioning, feature that will be really appreciate since the time for re-focusing before the show is always limited.



Claypaky

## StageConnect Pro Audience Interaction Software Allows Direct Engagement With Remote Attendees During Live Events



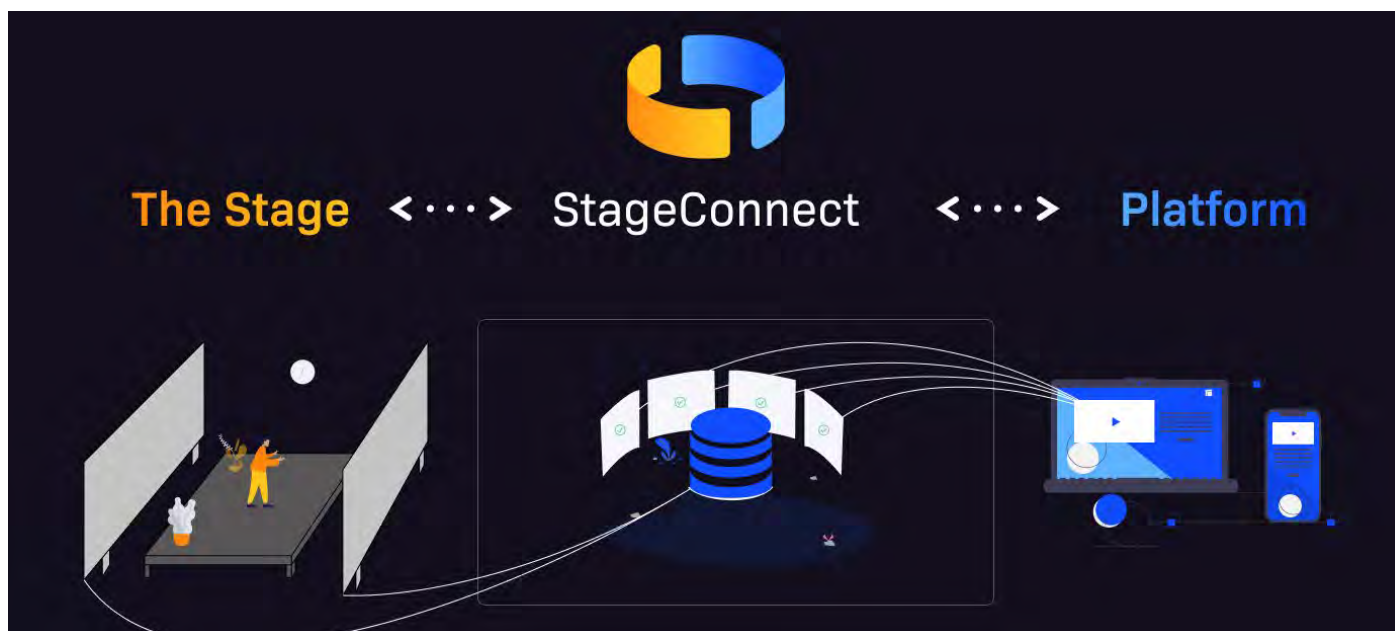
StageConnect Inc., an emerging player in the professional event, production, and video streaming technology market, has announced the release of StageConnect Pro, audience interaction software that is redefining what it means to have front-row seats at a concert, conference, or other live event. StageConnect Pro allows up to 1 million remote attendees to participate in live events and to directly engage the presenter or performer via an on-stage screen with full two-way functionality.

"The pandemic didn't just change the event industry; it shattered the core premise of live events themselves — gatherings of people in a physical location for some purpose," said Cole Morgan, StageConnect founder and CEO. "Our team saw an opportunity to reconnect people and boost the value of events by enabling remote audiences to interact with presenters who are on stage

or in the studio. That interactivity might be even more interesting and more valuable than those coveted front-row seats of the past."

Co-founder Matt Murphy, an Emmy Award-winning producer, spent much of the past two years working with major presenters to help get them back in front of their audiences.

"After working with clients who spent millions building virtual studios and looking for new ways to better connect presenters with their audiences, what emerged was a new virtual interactive format — full audio and video, with presenters surrounded by their audiences and communicating with them in real time," Murphy said. "This concept proved addictive for everyone involved. It's more fun and exciting for the audience than simply



sitting in a crowd, and it's more engaging for presenters because now they can interact directly with individual audience members."

StageConnect Pro is the technology conduit between the stage and the remote audience. Flexible integration options mean StageConnect Pro pairs with unlimited combinations of workflows and event technology — connecting live from any venue, stage, studio, or virtual studio through any web or event platform to any end-user display, creating an engaging experience for virtual audiences at any live event.

From the stage, presenters see the remote audience in front of them via downstage screens with gallery views. When the presenter is interacting with individuals or groups, those people appear on another downstage screen. Meanwhile, there's a video wall behind the presenter(s) made up of any combination of LEDs, projectors, or TV screens in any location or configuration the client chooses. The wall displays any composition of attendees in any number or group, with the capability for fluid interaction with any group in any order, planned or on the fly.

From the remote attendees' point of view, they watch a high-quality, low-latency event production feed through a video player tailored to shared experiences, viewing, and live interaction. A unique set of player controls gives them a simple, fun, engaging way to see what's

happening on stage and interact with the presenter(s) in real time. Behind the scenes, StageConnect Pro's live operator panel gives event planners and producers the production-grade tools to make these live exchanges possible. Technicians can create, manage, and operate StageConnect events in a fast, intuitive, and efficient workflow. They can quickly search attendees by name or tag and create unlimited combinations of groupings for display on the video walls. Through the composition multiviewer, operators can instantly see and manage all composed media walls, making it possible for a single technician to operate larger events, more walls, and faster switches. StageConnect Pro scales to suit live events of any size — such as awards shows, seminars/trainings, concerts or other performances, product launches, speaker series, gaming tournaments, red carpet events, trade shows, festivals, and many more.

During a soft launch of StageConnect Pro last spring, beta users immediately saw how the software can make virtual and hybrid events as compelling as live events. Feedback from one of the new customers: "Hybrid events are here to stay because they dramatically expand audience reach and are more cost-effective than live events. With StageConnect Pro, creative event planners now have the tools to make the hybrid event experience just as compelling too."

**StageConnect**

# Deciphering Directivity

by Elton Noronha



Photo courtesy of L-Acoustics

***An insight into loudspeaker directivity, its impact on the listening experience for live audiences, and why brands the world over stress on enhanced directivity capabilities for their current loudspeaker systems.***

The evolution of loudspeaker reinforcement solutions for live events has been a journey filled with crucial learnings that have contributed greatly to the advancement of loudspeaker design and deployment of present day. And though the size, shape, scale and complexity of loudspeaker systems has changed vastly over the course of time; the focus of loudspeaker manufacturer brands has always anchored on the capacity of their systems to provide the most optimal listening experience for the audience.

## A Bit of History

In the 1960's, the vocal columns were unable to compete with the screams of pop audiences and by the mid 1970's, live sound systems had evolved to include several numbers of high efficiency horns to achieve the high SPL's and bandwidth required; with the horns often

configured with the lows, mids and highs in separate boxes. This allowed for the bass bins to be grouped together to increase low frequency coupling, while the mids and highs could be stacked vertically (principally similar to current day line arrays) which allowed for narrowing their vertical coverage angle while increasing throw.

By the 1980's and 90's, there came the era of horizontally arrayed clusters of identical 3-way boxes with the bass, mid and highs all housed within the same enclosure, which met the prerogative of conveniently packaged systems that could be flown over the stage rather than stacked. Such horizontally arrayed clusters adopted the individual "point and shoot" philosophy over the need for coupling adjacent elements acoustically, which essentially presented the issue of interference caused by multiple sources thereby resulting in large variations

in the frequency response over the audience area. Also, the lack of HF coupling between adjacent elements meant that the throw of the system directly depended on the performance of a single HF device; which resulted in the need for rental service providers to deploy delay systems in order to efficiently relay high frequencies beyond 50 metres. This arrangement also gave rise to unintended coupling at low frequencies which amounted to a build-up in lows and low-mid frequencies, thereby tilting the overall frequency response of the array downwards as the array increased in size, even if the individual box had a flat frequency response.

The early 1990's, however, witnessed the application of line array principles, within a format that was even more conveniently packaged and easy to fly. Even though the basic principle of configuring a vertical column made up of closely spaced loudspeakers was implemented as column loudspeakers for use in reverberant environments of churches and railway stations, line array loudspeakers offered a perfect solution to the issues in live sound reinforcement encountered in the 90's, allowing for increased directivity in the vertical plane and producing a narrow vertical beam whilst assuring the same horizontal coverage remains as for a single unit.

And ever since it's widespread adoption in the 90's, line arrays have come to assert itself as the main technology in live sound reinforcement thanks to its perceived advantages over horizontally arrayed clusters – which includes a more consistent frequency response over the audience area, increased high frequency throw and reduced flying time. Crucial to the increased high frequency throw of a line array for live sound was achieved thanks to smaller distances between each element (either horn or direct radiator), and drastically flatter wavefronts produced by those elements. Simply put, if more output from each element adds together constructively with adjacent units, then more output will be available from the whole system or array. This line array principle, as described in Olsen's 'Elements of Acoustical Engineering', reiterates that the directivity of the line array increases with the length of the array, provided that the distance between the drivers is smaller than the wavelength being produced.

From the aforementioned evolutionary course of loudspeaker reinforcement systems for live events, it is

rather clear that advancements in technologies have been greatly steered to meet the greater and more efficient 'sound directivity' capabilities from a given system. But what exactly is directivity?

## Directivity – And Why it is so Crucial

To understand the importance of directivity in loudspeaker performance, we need to first review and understand what directivity means in relation to loudspeaker design.

First up, it is important to note that listeners will experience a change in frequency response when listening to a loudspeaker 'on-axis' i.e. in line with the loudspeaker's direction of projection and within its nominal coverage area; as compared to when they're listening to the loudspeaker 'off-axis' outside of its nominal coverage area. In essence, directivity encompasses the actual directionality of a sound source and how a loudspeaker's frequency response changes both inside and outside of the coverage region that it's designed to offer optimum performance. This means that loudspeakers maintain a consistent SPL throughout the frequency response range both on- and off-axis. In cases of narrow directivity loudspeakers – listeners will experience different sound pressure levels once they step outside the coverage region.

As frequencies go higher, their wavelengths shorten and this leads to a dramatic narrowing of the dispersion pattern. This is why one would notice that at low frequencies, loudspeakers tend to radiate consistently in all directions; whereas at higher frequencies, they tend to beam the sound. Thus, conventional loudspeakers that are found to be relatively 'flat' when heard on-axis, will invariably radiate a different frequency spectrum when heard off-axis because the response is no longer frequency independent.

Shorter wavelengths that radiate in a very narrow beam may no longer be easily heard when you step out of the coverage area – and this amounts for one of the key reasons why the audible clarity of a vocal performance or string instruments is dramatically impacted when listeners are outside the coverage area of a loudspeaker.

To solve this problem, several loudspeaker manufacturers choose to incorporate a relatively large horn design within the loudspeaker's overall built, which enables a larger coverage pattern that expands all the way to its edges. This clarifies the fact that the horn of a loudspeaker is responsible for its directivity, irrespective of whether you're considering a line array or a point-source loudspeaker. A precisely designed horn acts as the perfect means to spread out higher frequencies in a consistent pattern and achieve a more consistent listening experience.

## Dynamics of Point Source Systems

Point source speakers can be a great option when room dimensions, aesthetics and budget need to be taken into consideration. They are available in a variety of sizes and provide PA system solutions for many kinds of spaces, with some of the smaller models being portable and floor standing. Their size and physical dimensions are known to have a direct impact on the pattern coverage; with the size and shape of the horn primarily being the determining factor, dictating how wide or how narrow the mid and high frequencies cover. The bigger the horn, the better the pattern control, with the horns being capable of controlling the horizontal as well as vertical coverage. And depending on the aspect ratio of the venue and the horizontal reverberation character of the space (if any), point source speakers are found to perform better than most other systems when it comes to controlling coverage pattern. That being said, it must be noted that their ability for vertical pattern control of low frequencies doesn't extend as low in frequency when compared to line array systems. More crucially, point source speakers are found to be incapable of projecting consistent sound all the way to the rear area of large venues, which gives rise to the need for delay speakers that are usually installed partway through the venue in order to efficiently augment the listening experience for audiences at the rear. Understandably, such arrangements can also result in inconsistencies within the listening space, because mid and low frequencies from the delay speakers can wrap around the typically small cabinets and interfere with the clarity at the front of the venue.

To negotiate such scenarios, service providers may choose to array point source speakers in a configuration

called "long-throw/short-throw", where a top narrow loudspeaker projecting toward the back of the venue is tight-packed to a bottom wider-coverage loudspeaker for the nearfield. However, it takes skill to design a good array with speakers that are designed both for individual use and for arraying. This is because arraying point source speakers are found to work better at some frequencies than at others, resulting in acoustic lobing at some frequencies as well as interference at the seams between the coverage patterns of the multiple cabinets.

## Dynamics of Column Array Systems

Contemporary column speakers function similarly to line arrays, in that, they too feature multiple drivers, arranged vertically, but take the form of a single narrow cabinet, thereby allowing for a high degree of pattern control, which in-turn affords greater clarity.

Owing to their narrow width, they are easily integrated into applications spaces where the criteria encompasses keeping the visual impact of a loudspeaker system to a bare minimum. And in terms of performance, such speakers present a rather cost-effective means to provide efficient vertical pattern control. Certain models also offer an extended bass response, in addition to the capability to adjust coverage patterns to a particular degree, thereby better matching the shape of the listening space. Also, most passive column speakers need lesser number of amplifier channels to drive efficiently.

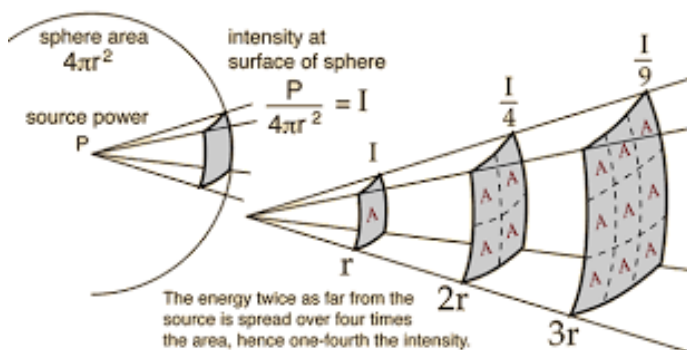
Powered column speakers afford the ability to adjust the coverage electronically, wherein "steered" aiming adjusts the direction of the coverage, while more complex "shaped" aiming precisely covers complicated architectural configurations. And similar to full-sized vertical line arrays, column speakers are capable of producing consistent sound levels from the front to the back of the listening space, while negating the need for multiple enclosures. The capacity to offer enhanced and more precise aiming provides increased intelligibility and clarity that makes these loudspeakers a preferred choice for small to mid-scale applications.

Having said that; passive column speakers typically have to be aimed physically by tilting the loudspeaker

unit against a support. Also, generally such speakers aren't found to be as loud as other loudspeaker types or provide as much low frequency output without the use of additional subwoofers. And perhaps most crucial of all, column arrays provide very limited horizontal pattern control.

## Dynamics of Line Array Systems

In its most basic form, a line array comprises multiple speakers suspended in either a straight fashion or curved vertical contour, wherein multiple drivers are stacked one top of the other to create a line source. Multiple speakers are vertically aligned facing at slightly different vertical angles (vertical dispersion per speaker in the array is usually 10° to 20° of vertical coverage per enclosure) – which allows the cumulate system to cover a greater depth of field with the same SPL.



### *Inverse Square Law*

Understanding this phenomenon requires a better understanding of the Inverse Square Law, which states that SPL will decrease at a rate of 6 dB per doubling of distance as sound radiates out from a point source in a free field. This means that if the SPL of point source loudspeaker is 100 dB when measured one meter away, it will measure 94 dB when measured at two meters (and 88 dB at four meters ... and so on); and this occurs because sound radiates in an omnidirectional pattern from a point source. Please note that this law does not consider spaces where audio waves could interact with reflective or absorptive surfaces.

Since a line source radiates in a nearly cylindrical pattern (as opposed to an omnidirectional pattern of conventional point source speakers) that spreads wider in the horizontal plane, but more narrow and controlled in

the vertical; the propagating sound waves don't disperse as quickly and thus maintain a more consistent sound pressure level throughout the space. In other words, if the array is designed properly, the level near the front of the audience will be approximately the same as the SPL level near the rear.

Depending on the number of enclosures needed to provide optimum coverage and dispersion, putting together a line array system often encompasses a rather stringent height requirement. Also, to achieve the wider vertical pattern required to cover a typically spread audience area, line arrays for live sound are nearly always physically curved in the vertical plane. Adapting the line array principle from theoretical straight arrays to practical curved arrays has important implications for the acoustic design, physical deployment and electronic control of practical line arrays for live sound. Firstly, it is important to determine exactly what shape of curvature is necessary to achieve the desired directivity for a particular venue. Secondly, appropriate wavefront curvature of individual elements needs to be determined to avoid either too much overlap interference when the array is flat or gaps when it is highly curved. And finally, the phenomenon of air absorption of high frequencies over distance, and appropriate equalization also needs to be taken into account.

Using line array systems at venues and applications that suffice the height criteria is found to eliminate the need for delay speakers mainly because such systems can be designed to provide coverage to even the farthest listeners. This is one of the main reasons why applications like outdoor events, music festivals and other large-scale events (and large/open air venues) tend to choose line array systems as their primary sound reinforcement solution. Also, over the course of time, line arrays have been adapted into venues with complex acoustics thanks to its ability to steer the sound and aim at the audience, while avoiding most reverberant surfaces and elements within the venue.

On the flipside, while line arrays are great at creating an equal sound pressure level from the front of the audience to the rear, their capacity to deliver uniform frequency response at the varying distances in the listening field left a lot to be desired. Unless properly designed, the performance of a line array is very much frequency dependent, with array designs having to factor key

parameters including the vertical and horizontal spacing between each driver, cabinet splay, as well as the array length as it relates to frequency length. Unless all these parameters are chosen correctly, the array can exhibit significant variations in frequency response within the listening area.

## Assuring Optimal Coverage in Line Array Systems

When considering optimum coverage that could be derived from line array systems, there is much more to the whole picture than just the performance in the vertical plane. The way that the line array principle is implemented in the individual low, mid and high-frequency elements of the design is of prime importance. The measured performance and sonic signature of any particular line array loudspeaker model depends on the expertise of the designer, their design preferences and the nature of the elements used. For instance, some designs use direct radiators for bass and midrange and others opt for horns. Also, some line array designs are noted to cross over into compression drivers below 700Hz while others cross over above 2kHz. These form some of the key contributors to why line array systems from different manufacturers measure and sound very different from each other. In the horizontal plane, most live sound line arrays aim for a 90° coverage pattern.

Manufacturers strive to overcome the challenge of achieving consistent horizontal directivity across a range of frequencies while ensuring that design decisions pertaining to vertical criteria are steadily maintained without compromising the horizontal performance of the array. Another key consideration is ensuring that the frequency response of the system does not change as the listener goes from on-axis to 45° off-axis, but just drops by 6dB in level.

## Directivity & Coverage at the Heart Of Advanced Loudspeaker Designs

Noting the crucial importance of directivity and coverage on the assessment of overall performance value of loudspeaker systems, several industry leading brands have invested a great deal of time and effort in developing technologies that allow their loudspeakers to offer enhanced capabilities.



*PreSonus CDL12*

### PreSonus

One of the ways to achieve consistent horizontal coverage is to utilise constant directivity horns that better define the coverage pattern. Constant Directivity essentially means that the directivity and coverage is the same from the lowest frequency to the highest within the frequency response range of a loudspeaker. And it's consistent in both the horizontal and vertical planes both in frequency response and SPL.

PreSonus has been successful in employing constant directivity technology within their loudspeaker systems with the CDL12 loudspeaker being their primary spotlight. The loudspeakers is equipped with eight 2-inch drivers aligned in a segmented constant-curvature arc to create a single high-frequency array; thereby creating a pseudo point-source array with performance values similar to that of a well-designed horn, but without requiring compression drivers, allowing it to be crossed over at a lower frequency. The centre of each driver is carefully located on a constant-curvature contour so that they are equidistant from one another and from a central common curvature centre. This high-frequency array is then centred in front of a 12-inch woofer, forming essentially a point-source configuration. Because the output of the low-frequency driver travels from the same acoustic axis as the high-frequency driver, the pattern always effectively radiates from the

centre of the speaker, which in-turn ensures that the frequency response and SPL are consistent throughout the coverage of the entire system. This behaviour is believed to be the same whether the loudspeaker is used individually or as part of an acoustically coupled vertical array.



### L-Acoustics

“Directivity control is at the heart of our loudspeaker design. Our goal is always to restrict energy to the audience area and preventing reflections from influencing the direct sound. Using our directivity technology, we are able to control the widest frequency range

for response homogeneity, and we are also able to adjust directivity, adapting it to the shape of the targeted audience geometry” asserts **Alvin Koh, Director of Application Project – APAC at L-Acoustics**, as he refers to the VDOSC system from L-Acoustics, which is widely thought to be the first ever modern-day line source array (released back in ~1992) which sported Wavefront Sculpture Technology (WST) which ensures that positive interferences in the HF domain create a more directive “beam” of energy and reduce energy outside of the desired audience area. The brand later introduced the L-Fins in 2008 with the K1 system, which essentially are two symmetrical guides positioned in front of the DOSC waveguide, dictating the horizontal directivity of an element. Soon after in 2014, the company introduced ‘Panflex’ as its key horizontal directivity control technology (with the K2 system), which combines mechanically adjustable L-Fins and DSP algorithms contained in the loudspeaker’s presets to widen or narrow the directivity pattern of a line source element down to 300Hz.

Panflex technology, which is available in all elements of the A Series (A15(i) Focus & Wide, A10(i) Focus & Wide) and Kara II, K3 and K2 systems, offers four directivity options that are integrated inherently into a single enclosure; allowing for the loudspeaker system coverage to appropriately match the audience geometry. For wide audience geometries, the use of 110° preset offers

stable polar behaviour over a large dispersion, whereas for narrow venues or to avoid reflective side walls, the use of the 70° or 90° asymmetric settings directs the HF energy onto the audience effectively. And when out-fills are needed, the 90° deployment helps ensure extended coverage while minimizing the overlap with the main system, thereby reducing comb-filtering and ensuring clarity for the whole audience.



### Harman Professional

**Aditya Todi, Senior Director & Business Head – Professional Solutions – India & SAARC – Harman Professional**, provides an insight on the advancements in technologies developed by Harman Professional to enhance directivity capabilities in JBL

loudspeakers, as he informs “JBL has always been at the forefront of developing loudspeaker technologies. From inception, JBL engineers relentlessly test new shapes and develop new materials to ensure our products achieve the desired level of performance. And this has resulted in groundbreaking designs and technologies such as the Progressive Transition Waveguide, Constant Curvature Waveguide, Slipstream Port, and Image Control Waveguide. In more recent times, JBL has patented the technology called the Radiation Boundary Integrator (RBI) which helps deliver broader and more stable coverage; wherein the technology combines high range and mid-range frequencies so the transition across each band is uninterrupted, undistorted and seamless. A patented, tuned resonant-



*A closer look at the JBL VTX V25\_II*

chamber is integrated into the waveguide itself, effectively eliminating throat-related cancellations due to back pressure from the mid-range section. And the implementation of a refined RBI waveguide provides improved horizontal coverage that's broader and more stable. Adapted from the Vertec Series of the line array speakers, the Radiation Boundary Integrator (RBI) technology is used on all JBL Professional Line array systems, which includes the VTX V series as well as the A Series".



### Martin Audio

"From the very beginning of Martin Audio back in 1971, designing loudspeakers with defined coverage has been part of who we are. From well-designed pattern controlled horn loaded systems through to line arrays and then our electronic array

optimisation, introduced with the MLA series of products and Display 2 software in 2010. Within the MLA family, it is 'Multicellular' optimisation, as every drive unit or band section is individually driven and controlled, resulting in extremely high levels of directional control in the vertical plane. For the Wavefront Precision family of products, we have 'Scalable Resolution', where the user can choose the degree of control they need, from box by box at the highest resolution through to blocks of up to four cabinets in the case of WPM. Obviously, the higher the resolution (fewer boxes per amp channel) the more control over vertical control is available. In both cases, fixed but accurate horizontal pattern control is achieved through good acoustic design, a Martin Audio hallmark" states **Robin Dibble , Product Support Engineer, Martin Audio.**

DISPLAY 2 software and (in the near future) DISPLAY 3 software, enable the user to set up each array to achieve even frequency response and user controlled SPL reduction across the whole audience area. At the same time, it is believed to actively reduces sound levels by up to 20dB broadband in regions outside of this area. There's also the 'Hard Avoid' region, which can be used in any area of the room, where the system will aim to

achieve 30dB of attenuation broadband compared to the level within the audience space. DISPLAY produces an optimisation file for each array which is loaded directly into the active loudspeakers in the case of MLA, or our iKON power amplifiers in the case of Wavefront Precision. DISPLAY 3 is envisioned to be a design platform for all of Martin Audio's array, subwoofer and point source loudspeakers and include the optimisation of all of the brand's arrays. For now though, array optimisation is carried out within DISPLAY 2 and can then be inspected in three dimensions in DISPLAY 3. These capabilities are currently in the MLA, Wavefront Precision and O-Line (super-compact articulated array) speaker series, and in the near future, it is believed that the TORUS will also benefit from elements of this optimisation control.

### QSC

In response to the need to offer more precise directivity capabilities through their loudspeakers, QSC introduced the Directivity Matched Transition(DMT) technology which is touted to be foundational to QSC loudspeaker design. Available in the K Series, KLA Series and KW Series loudspeaker systems, QSC's DMT technology in essence allows for the horn shape to match the high-frequency driver coverage angle to the coverage angle of the woofer at the crossover frequency. DMT horns match both the width and height of the waveguide to the woofer's coverage at crossover frequency yielding very smooth off-axis response and an optimized power response, which in most cases, negates the need to equalize the loudspeakers once placed in a room.



*QSC KLA12 features DMT Technology*

Another interesting aspect is that smaller woofers typically have lower sensitivity(2), but at the same time, their adequately matched DMT horns radiate sound

energy over a wider area, and therefore their horns on-axis sensitivity is lower by the same order of magnitude. Larger woofers have higher sensitivity, but their matching narrower DMT horns also have higher on-axis sensitivity, by the same order of magnitude. In that way, the DMT technology greatly improves the sound reproduction quality, on- and off-axis, without creating compromise on the overall loudspeaker sensitivity and efficiency.

### Bose Professional

Bose Professional introduced DeltaQ array loudspeakers as its answer to meet the directivity challenges for applications encompassing live sound, arena sound as well as installed sound. The versatile DeltaQ DeltaQ array technology is said to improve sound quality by providing better horizontal coverage control to reduce unwanted wall reflections, allowing for more vertical pattern choices and affording the ability to change directivity or "Q" per array element for more consistent sound quality, with uniform front-to back coverage.

With the brand's ShowMatch series and ArenaMatch series of line array systems incorporating the DeltaQ design, the loudspeakers are said to be optimized for both permanent installations and portable applications, with field-changeable waveguides in compact enclosures that can form DeltaQ, constant-curvature, or "J-shape" line-array configurations. The systems come with changeable 70° and 100° waveguide panels



*Bose ShowMatch SM5 DeltaQ Array Loudspeaker*

to adjust horizontal coverage, wherein users have the option to change even a single panel for asymmetrical patterns. Additionally, the brand also offers 55° and 120° waveguides as add-on accessories.

*EAW AC6*



### EAW

Veering into the domain of column speakers, EAW's recently launched AC6 2-Way Full Range ADAPTive Column boasts the ability to compensate for coverage and directivity with its Adaptive Performance technology. Managed via EAW's Resolution 2 software, and equipped with EAW's Focusing and DynO digital signal processing, the loudspeaker is said to produce three-dimensional coverage within even the most acoustically challenged spaces, while providing clear

and dynamic sound with a pristine impulse response at any volume. Utilizing six low frequency transducers and 30 high frequency transducers within one single unit, EAW confirms that an infinite amount of columns can be flown as mains or integrated with the larger Anna or Anya line arrays for endless coverage possibilities. And just like its other ADAPTive models, this loudspeaker is integrated with Dante™ redundant networking as well as analog redundancy capabilities making connecting and communication to each module streamlined and dependable.

"With the ongoing success of our ADAPTive line arrays, we are excited to introduce a loudspeaker equipped with the same powerful DSP toolkit that EAW is known for, but inside a small-format column enclosure. With the release

of the AC6, we affirm our mission in being a driving force of innovation and reliability in the world of live sound.” says TJ Smith, president of Eastern Acoustic Works (EAW).

### d&b Audiotechnik

Speaking about the advancements in directivity technology made by d&b Audiotechnik since the brand's inception, **Gareth Kelbrick - Director, Education & Application Support APAC, d&b audiotechnik Asia Pacific Pte Ltd** – affirms, “d&b's long progress in directivity control began with the mid-range and has continued down into sub-bass range. In 1988 d&b released the F1220 a 12" / 2" point source loudspeaker which was not only a step forward in directivity, but in the d&b 'system approach' as well. This has been developed and improved upon to this day where we see the culmination of these efforts manifest in our SL-Series speakers with broadband directivity control. The best way to see what this really means for the sound coming out of the loudspeaker cabinet is to look at an Isobar plot – which visualises the horizontal directivity performance. For a loudspeaker cabinet or array, cardioid performance means a high directivity of sound energy

emitted to the front, in the direction of the audience, and a low level emitted to the rear, where it is not wanted. With the SL-Series we have been able to achieve this in not just the high and mid frequencies, but the low frequencies too, down to 45Hz in the case of GSL.

### Kenny Chng, Education & Application Support

**Specialist APAC** adds, “d&b has pursued directivity control for decades, with this design criteria maintained across a variety of our speaker ranges, from our industry leading xC cardioid column arrays to our dipole point sources and both passive and 2-way cardioid subwoofers. The SL-Series itself boasts a range of cabinet sizes with XSL, KSL and GSL covering a broad scope of user requirements.”



*d&b XSL, KSL and GSL family*



*Gareth Kelbrick and Kenny Chng*

Alongside, in 2016, d&b introduced its NoizCalc software, which draws on the complex data from the d&b ArrayCalc simulation software to model noise pollution outside the defined listening area calculated according to international standards (ISO 9613-2 and Nord2000). The results are displayed on a 3D terrain map showing the calculated emission in the areas surrounding the audience listening zones. This visual representation shows the actual system performance in the far field, enabling users to optimize for listeners while satisfying local noise restrictions and offsite regulations. To ensure the results are reliable, NoizCalc includes all complex data concerning the addition and subtraction of sound waves, including phase information to describe the combination and interaction effects within a loudspeaker system consisting of multiple line arrays, subwoofer arrays and delay systems.



*d&b audiotechnik KSL system at Australia Day.*

## Outline

Developed entirely in-house by their engineering team, the design of Outline's Warped Finite Impulse Response (WFIR) filters presents a crucial means to dramatically enhancing directivity and coverage derived from the brand's loudspeaker offerings. WFIR filters are one of the key features found in Outline's groundbreaking Newton FPGA processor, which boasts remarkable design and computing power in a single rackspace, networkable chassis. Outline has noted "WFIR filters offer fundamental technical improvements over traditional FIR filters in that they operate on a semi-logarithmic scale, similar to the nature of human hearing. This means that they are able to maintain high filtering resolution over the entire audio range, even in the case of increasingly high sampling frequencies. WFIR technology also allows the use of raised cosine filters which provide a greatly enhanced level of accuracy in equalization. They do require up to three times the computing power required for traditional FIR filters (not a problem with Newton's onboard processing power!), but in turn they provide up to 10 times the resolution on mid-low frequencies. They are also not subject to the latency artifacts suffered by FIR filters.



*Outline Newton FPGA processor*

## Thoughts for the Future

The need for good directivity in loudspeakers cannot be sufficiently emphasised and remains an area that speaker designers continue to pay keen attention to. The pursuit to have loudspeakers sound like the original sound has driven several brands to not just invest into clever engineering of physical loudspeaker units, but also software technologies that further enhance projection, coverage and directivity capabilities of the loudspeakers. And with a rapidly evolving research & development ecosphere which has now come to include several new facets of artificial intelligence and machine learning – the possibility of experiencing acoustic realism from loudspeakers seems to be a not-so-distant reality now.

[Bose Professional](#)

[d&b audiotechnik](#)

[EAW](#)

[Harman Professional](#)

[L-Acoustics](#)

[Martin Audio](#)

[Presonus](#)

[QSC](#)

[Outline](#)

## AUSTRALIA

# Christie Integrated Solutions Bring The Wider Earth Theatrical Performance to Life with Amazing Visuals

*Christie solutions elevate show to an entirely new level with bold and colourful images*



Christie and Dead Puppet Society, an Australian based production house and design company with international reach, have collaborated again to deliver true-to-life visuals for its latest theatre performance, The Wider Earth.

The award-winning story of a rebellious young Charles Darwin and his daring voyage onboard the HMS Beagle to the far side of the world, premièred on February 5, 2022, at the Princess Theatre in Brisbane. This highly

anticipated event features an ensemble cast, remarkable puppetry, cinematic projections and an evocative original score. This is the second consecutive year that Christie is providing integrated solutions support for Dead Puppet Society's acclaimed live performances following the tremendous success of Ishmael in September 2021.

Among the highlights of The Wider Earth are stunning projections made possible using three Christie



DWU1075-GS 1DLP laser projectors equipped with Christie Mystique automated camera-based alignment and recalibration solution. Content management and processing are accomplished by Christie Pandoras Box Players, Pandoras Box Manager and Widget Designer running the versatile and powerful Christie Pandoras Box Version 8 software.

“We are very proud of the large-scale projections in The Wider Earth that immerse audiences into the storyline, where they can experience Darwin’s life-altering journey through phenomenal images achieved by the Christie laser projectors,” said David Morton, Creative Director of Dead Puppet Society, and Director/co-designer of The Wider Earth. “We’re thrilled to once again bring our creative vision to life with Christie’s dependable laser projectors fitted with Mystique auto-calibration solution. The ability to seamlessly align, calibrate and maintain images from the three projectors in a matter of minutes, instead of hours, is just incredible.”

Nicholas Paine, Executive Producer, Dead Puppet Society, and Creative Producer of The Wider Earth, added, “The Christie solutions have elevated our show to an entirely new level with bold and colourful images. Apart from the astounding visuals exhibited by

the DWU1075-GS laser projectors, the new Pandoras Box Version 8 also works exceptionally well with the Pandoras Box Players, Manager and Widget Designer to heighten the storytelling process. Displayed contents on the large screen beautifully complement elaborate models, miniaturised landscapes and live performers onstage to deliver this gripping story behind one of the most important discoveries in history.”

Greg Spence, Senior Business Development Manager for Australia and New Zealand, Enterprise, Christie, commented, “The Wider Earth is a visually stunning and sophisticated stage performance that combines masterful puppetry, live performances and immersive projections to deliver a multisensory theatrical experience. We are delighted to continue our collaboration with Dead Puppet Society by equipping the production team with a suite of our projection and integrated solutions that are capable of opening up a world of creative possibilities.”

*Photography by Prudence Upton.*

**Christie Digital**

## INDIA

# Star Dimensions Astutely Reinforces the Monumental First-of-its-kind “Bandra Wonderland” Project in Mumbai

*Star Dimensions overcomes extremely tight deadline and environmental conditions*



With the project envisioned as the city's celebratory hurrah for Christmas 2021 and New Years Eve 2022, the team overcame insurmountable odds to successfully illuminate the iconic Bandra-Worli Sea Link and Bandra Reclamation promenade through a seamless confluence world-class professional entertainment lighting and architectural lighting technologies.

India's maximum city – Mumbai – capped off 2021 in spectacular style with the first-of-its-kind 'Bandra Wonderland' project that saw the iconic Bandra-Worli Sea Link and the ever-bustling Bandra Reclamation promenade coming alive in a dazzling display of lights and colour to celebrate the festive occasion of Christmas and NYE and bid farewell to yet another year of

pandemic stricken uncertainties and a rather restrained approach to celebratory events.

Gracing the city between 24th December 2021 and 2nd January 2022, the spectacle came alive as the sun set on the city - with the entire 1.5 km of the Bandra Reclamation promenade being engulfed in specially themed displays that emphasized the four different seasons of the year; boasting different eye-catching sections like a boot house, a crib, an igloo, a reindeer, a Santa ride, a heart, multiple selfie-stations and several different uniquely shaped tunnels and walkways. Even the adjoining greenery and trees located by the sidewalk of the promenade were brightly decorated, which added to the overall grandeur of the space.



On the other hand, the Bandra Worli Sea Link, which measures in at a total of 5.6km long and 8-lane wide, too was washed over with a captivating display of colourful lights that emphasized the same 'four seasons of the year' concept; offering a truly spell-binding viewing experience, irrespective of whether viewed from up-close while travelling on the bridge or from afar on the city shoreline. The sea-link also hosted a special laser beam show which took place at midnight on New Year's Eve and acted as the perfect welcome sight to ring in 2022.

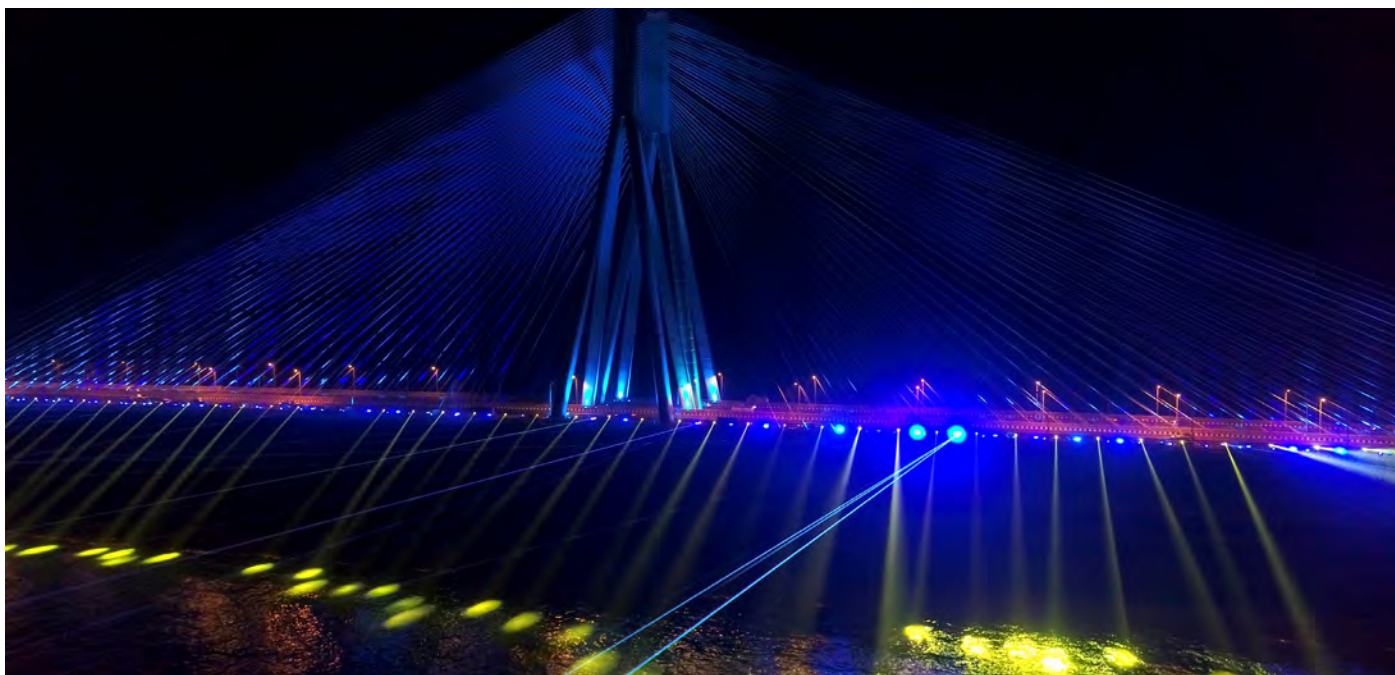
Entrusted with the responsibility of bringing the ambitious Bandra Wonderland vision to life was one of India's leading event management companies, that is, **DNA Entertainment Networks Pvt Ltd**, who are regarded as pioneers in the art of flawlessly delivering awe-inspiring and unforgettable live entertainment experiences of every scale imaginable.

Considering the sheer magnitude, scale and high-value importance of the Bandra Wonderland, and DNA's stellar reputation of being thorough perfectionists in their craft; they chose to partner with **Star Dimensions India Pvt Ltd**, who are one of India's foremost professional live entertainment technology service providers, and a long-standing associate of the company. The two

organizations have worked together on several different live mega-productions for over a decade, and therefore share an undeniable bond of faith and trust in each other.

Ashish Mehta - Technical Director & Co-Founder of Star Dimensions India shares, "We have been associated with DNA Entertainment for over a decade and have worked with them on several different mammoth productions – much to their satisfaction and content. This made us the natural go-to partners who could assure the kind of superior technical service and systems that they desired for this project; and we're extremely honoured to have been entrusted with this opportunity to be a part of something so historic. Having said that, working on the Bandra Wonderland project has by far been one of the most challenging yet most memorable and satisfying professional experience in the history of our company – none of which would've been possible without all the hardwork and dedication of our amazing team who worked tirelessly in ensuring an absolutely flawless execution."

Mr Mehta informs that from the first brief with the DNA team to the eventual final execution, the Star Dimensions team had an overall time frame of just 48 hours to work their magic. Another extremely crucial challenge that stood before the team was that of the environmental



conditions of the project location itself. Being an outdoor location directly on the Arabian Sea, it was quite the task for the Star Dimensions team to work in the rather extreme maritime condition, with the location being extremely hot during the day and extremely cold at night.

Despite the odds stacked heavily against them, the Star Dimensions team, managed to successfully commission the complete rigging, testing and programming safely and securely within a span of 36 hours, thanks to meticulous planning and dedicated efforts invested by every single member. Taking the extremely tight turnaround time into special consideration, the warehouse team worked over night with a focused strategy of vehicle movements and ensured safe off-loading of equipment on-site, strictly abiding by the precisely planned load-in roster. Most of the addressing of key fixtures was done at the warehouse itself, which helped in reducing the overall rigging time to half; with the on-site rigging team split into 2 separate units, each of which were equipped with all necessary personal safety gear and following mandated safety protocols. The respective teams individually worked tirelessly either during the day or the night, and ensured that the entire set up was commissioned seamlessly and within the given time frame.

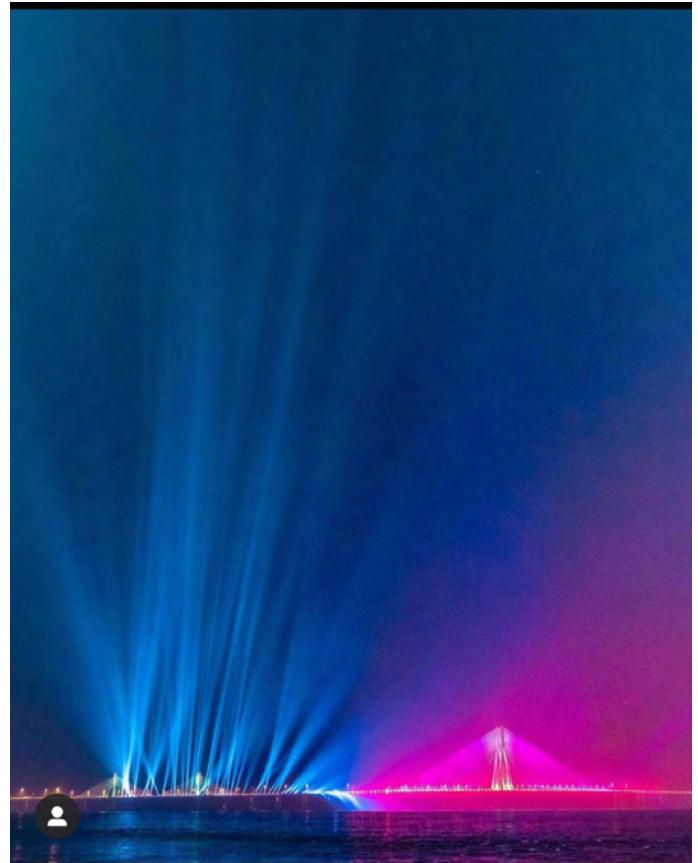
Between the two distinct locations that had to be illuminated, the one that posed the greater challenge for

the Star Dimensions team was undoubtedly the Bandra-Worli Sea-link. The biggest hurdle for the team at this location (in addition to the testing weather conditions), was that of dealing with the sheer volume of vehicular traffic. "With the bridge being one of the busiest roadways in the city, especially during peak work hours, it was nearly impossible for authorities to completely shut the bridge and divert traffic to allow an easier setup experience. That being said, we did receive an immense amount of support from the Government of Maharashtra who helped us out by managing the traffic on one of the lanes on either side of the bridge in order for us to off-load our equipment and rig the system up as securely as possible while following all safety and traffic protocols," Mr Mehta recalls.

In terms of the execution itself, the Star Dimensions team deployed a vast range of intelligent lighting fixtures that stretched over 6 kms on each side of the bridge making it one of largest on ground installs that the company has commissioned till date. The inventory included the use of over 1200 fixtures from industry leading manufacturers like **Elation, Martin Lighting, and Clay Paky**; with lights being spread over 4 lanes on either side of the sea-link which constituted a total of 12kms. The idea of running data cables of those lengths across the bridge was clearly not feasible; and this prompted the team to run the entire rig wirelessly in an effort to keep things organized and simplified for quick and easy

troubleshooting. The team chose to rely on the **Artnet Protocol** to run networking capabilities across the entire stretch with multiple distribution boxes for power and data.

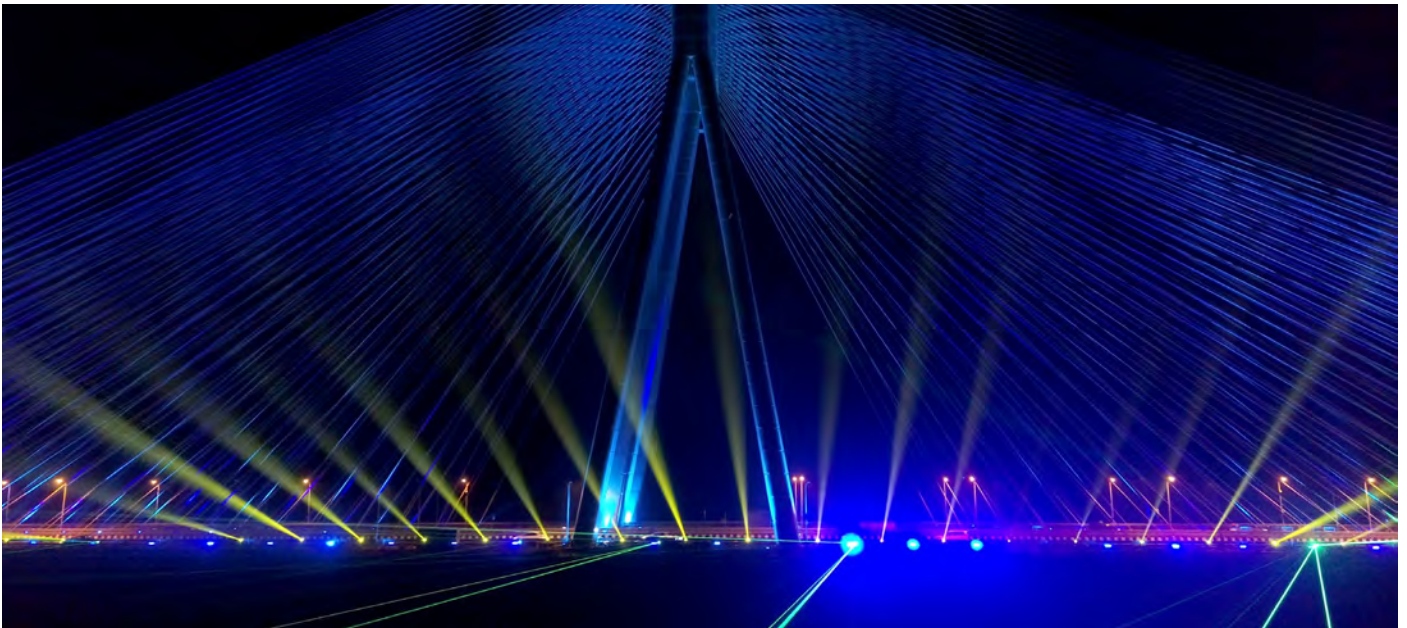
Speaking about the choice of inventory deployed for the project and the intricacies involved in bringing the design ideas together, Mr Mehta explains, “Our main workforce for this entire project was Elation Platinum FLX, an award winning 3 in 1 light with a very powerful luminary output. We had to achieve a wide coverage over the water and had to ensure that audiences across either side of the bridge were able to experience this spectacle. While balancing the intense flourishes and movements with the heads, we also had to ensure that the 6 pylons and stay cables appeared clearly with soft lush washes, while maintaining clear visibility of the sea-link’s intricate design. And we found the Martin Quantum Wash to be the perfect choice to bring this design idea to life, owing to its sheer power and market leading optical system. One of the key aspects in bringing our designs for this project together was for us to secure a centric view of the bridge. And we managed to find such a spot for ourselves on the opposite side of the coast. This made it a lot easier for us to accomplish our programming and design ideas, with the lighting programming being commissioned via WAN networking over a span of 5 Km.”



It is also noted that the Mythos 2 spotlights and versatile HY B-EYE K25 LED wash lights/beams/VFX projectors from Claypaky played a key role in illuminating the bridge, with a total of eighty units of the Mythos 2s positioned along the bridge span while thirty two units of the K25s highlighted the cables and arches with lighting effects. **Pankil Ahuja, Sales Manager for the Indian Sub-Continent for AMS-Osram ClayPaky** revealed, “The holiday light show really was a benchmark in terms of the equipment used, and it garnered a lot of attention from lighting designers and lighting specifiers in the region. The lighting set up and installation was put together in just two days; and with such a short turnaround, the Mythos 2 and B-EYE K25 fixtures were the perfect choice to enable renowned **Lighting Designer Becket Tundatil** to program and control everything. The beam of the Mythos 2 was so powerful that it could easily be seen from kilometers away, while the K25 proved to be an extraordinary fixture with many effects for the lighting designer to play with. It was incredible to see the two fixtures in action together.”

For the laser show that took place on the night of NYE, the team deployed FB4 enabled lasers from **Kvant's**





Atom and Spectrum series, which have been designed specifically to deliver impactful aerial beam shows and liquid skies. "Conceptually, our objective once again was to ensure that the special laser show could be enjoyed by every single person watching it from any side of the sea-link," Mr Mehta reiterates.

Additionally, the Star Dimensions team commissioned tailored lighting solutions for the different themed sections at the Bandra Reclamation promenade; with the individual walkways and tunnels being equipped with multiple washes that ensured a unique vibe at each space, while features like the boot house, crib, reindeer and Santa ride etc, were equipped with a mix of spot lighting fixtures, washes and custom-designed lighting sources to create a truly wonderful spectacle.

Needless to say, the experience of successfully pulling off such a monumental project was one that will remain etched in the minds and hearts of the entire Star Dimensions team, as Mr Mehta asserts, "Working on the Bandra Wonderland project has been a truly life-changing experience – not just for me personally, but the entire team. The fact that we were able to pull off such a humongous project in sublime fashion, is a testimony to the unparalleled level of commitment, expertise and sheer grit of team Star Dimensions. For me personally, the most memorable moment of this project was seeing the iconic sea-link finally lit up with those enchanting colours and patterns that exemplified the true essence

and spirit of Mumbai, our hometown. It definitely is an experience that my team and I are extremely proud of, and one that we will cherish forever." The Client was very happy with the overall project and how it panned out. With the grandeur added to the Christmas and New Year celebration, it was a grand success in bring in joy to the people and putting Mumbai on the Global map of Christmas and New Year Celebrations.

"This Project has turned around heads of all Indians towards the iconic bridge. This is a very proud moment for us to be part of this project and establish an everlasting memory". – Kaunain Merchant (Assistant VP, Team DNA)

The 10-day long spectacle was celebrated also on several networking platforms online by many noteworthy personalities from the field of politics, entertainment, sport and more – with dignitaries like the Hon'able cabinet minister of Maharashtra, Shri Aaditya Thackeray posting a video on Twitter showcasing the gorgeous view of the Bandra-Worli Sea Link, while also inviting everyone to see the decoration and enjoy festivities safely. Cricket mega-star Virat Kohli also shared his amazement via a tweet that read "Phenomenal Job Guys. The city looks so festive and lovely!".

**Star Dimensions**

## AUSTRALIA

# grandMA3 Shines at the Hillsong Event

*Lighting Designer Jarrad Donovan gives a resounding thumbs up to the capabilities of grandMA3*



Jarrad Donovan from Juxta Design chose a full grandMA3 lighting control system for Hillsong Church's recent "Simply Christmas" special production which was staged at The Hillsong Convention Centre in Norwest, Sydney, Australia.

The slick and vibrant event was slightly different from the usual Hillsong "Christmas Spectacular" show, both to reflect the 'mood of the moment' and to comply with the current Covid protocols, which resulted in a smaller cast and a tighter timeframe for build and rehearsals. That said, the goal of achieving the same exceptionally high standards and complex production values was still very much the objective for the entire team involved in creating a dynamic, memorable event that wowed both live and streamed audiences.

The six 90-minute shows took place over two days and were action-packed with a lively mix of 15 different back-to-back musical performances plus MC slots, a schedule

that also accommodated the regular Sunday morning church service. It was Jarrad's third time relying on the grandMA3.

He completed a tour as lighting designer with popular children's entertainment band The Wiggles earlier in the year, and had also programmed for a pilot TV show using grandMA3. Based on these positive experiences, he also specified two grandMA3 light - main and backup - for these Hillsong seasonal shows.

Appreciating the importance of keeping abreast of advancing technology, Jarrad has been keen to dip into grandMA3 for some time, particularly with talk of some Australian shows moving to the grandMA3 platform. "This show was ideal to continue getting my head around the new workflow and what I need to re-learn / navigate to get my mind translating through the grandMA3 to the output."



The production design featured a few different stage locations along with assorted other areas needing to be lit, including a nativity scene that moved through the audience. The Hills Campus venue is wide, so Jarrad took advantage of this spatial element, with the lighting design also integrating the IMAG side screens and other LED elements onstage to accentuate the overall picture. This provided plenty of depth and dimension for cameras, keeping the online audience in mind.

The brief from show producer Josh Bonett was to keep lighting flexible and give each artist an individual aesthetic, so Jarrad programmed lighting treatments in layers that could be applied, mixed and matched or used in stand-alone contexts.

"When seeing the B-Stage for the fourth or fifth time, it had to look fresh, new and completely different," he commented, a task achieved utilising over 200 moving lights plus some pixel fixtures, all supplied by Chameleon Touring Systems.

Jarrad started programming this show whilst working on another project in Dubai, using grandMA3 onPC command wing XT with just a grandMA3 viz-key. With grandMA3 viz-key unlocking parameters in Depence2, he could program during down-time in his hotel room with only the onPC and without any processing units for parameters!

"The Phasers are steadily becoming more powerful than the grandMA2 effects were, and Grid Selections and MATricks are changing my workflow for the better," he commented.

He also thinks being able to send / receive and integrate OSC Commands is a really helpful grandMA3 feature, and that these new key features generally give access to "quicker and more versatile programming." He cites the magic blade FX fixtures in particular as an example for this Hillsong show. These were rigged in a grid and programmed to produce a range of fluid, animated looks. Experimenting with Phasers, Grid Selection and MATricks made this process "creative and speedy".





"There are many very practical advances in the grandMA3 software, and I am definitely starting to miss these if I have to revert to grandMA2 for a show!" he stated. Jarrad used MVR to export out of Vectorworks and into Depence2 and grandMA3 for a showfile and thinks that being able to do one update in the drawing and push it out to multiple locations and software platforms is a "game-changer" that will dramatically enhance pre-production.

He also loves the grandMA3 hardware. While the new button layout took some getting used to, he thinks the general console ergonomics "are stunning", from the multitouch screens to the feel and press of the buttons.

As a general grandMA observation, he is super-impressed with the level of support available, knowing he can call Vince Haddad from Show Technology, MA Lighting's Australian distributor, or Paul Collison – one of Australia's key international lighting designers and a mentor of Jarrad's – at any time, and they will have a solution.

Jarrad has worked for Hillsong in several different roles since 2014, and the church has been a regular client since he established Juxta Design in 2018.

He has been a grandMA user for many years and enjoys the constant learning process and the fact that his programming and operating skills are ultimately transferrable and have developed as his career has progressed. He is now working on numerous projects from international touring shows to conferences, business events to television productions.

He is also reassured that wherever he is in the world he can always find a grandMA console! "That and the fact that the console's capabilities are constantly being pushed forward is fantastic! I am very excited to be a part of this, reaping the benefits and having my programming and shows pushed forward by this platform."

Show Technology Australia Pty Ltd. is the exclusive distributor of MA Lighting in Australia.

*Photos: © Hillsong Photography Team*

[MA Lighting](#)



**KHEMMANAT  
RUANGTHONGMUANG  
(JAY)**

**Production Manager,  
VL Sound & Light  
Co.Ltd., Thailand**

***ETA SPOTLIGHT is a heart-to-heart with industry professionals from across Asia, as they discuss their foray into the business and their journey thus far, while sharing their honest opinions about key aspects like market trends, technology, upskilling and more...***

**Please provide us with a brief about yourself.**

I currently work as the Production Manager for VL Sound & Light Co.,Ltd in Bangkok, Thailand. I also am involved with technical support and product design for the company's in-house VL audio brand. In addition I am a guest lecturer in Sound System for EDM Course, Event Production at the Bangkok University and guest lecturer in Sound & Light for Event course, Event Production University of the Thai Chamber of Commerce. When time permits me I put on my freelance sound engineer hat for artists, concerts, musicals and special events.

**What got you interested in getting into the industry?**

My passion for music. I love playing music since childhood. I used to follow my parents to parties to see the band and the sound system. One day, when I was 12 years old, I had the opportunity to play music with my high school band. Since then I have been practising music and I even made my own speaker cabinets – cutting the wood, polishing the cabinet and painting the speaker cabinet by myself every step. When I started

doing everything by myself I feel I wanted to learn more. Coincidentally, the conductor of the school band said that there was a job in this field called “Sound Engineer”. This got me piqued as to what it will take for me to become a Sound Engineer.

Those days there was no internet nor specialised textbooks. So I went to see other band performances and studied how the systems were connected and got myself involved. I learned about the equipment, testing the operation of various types of sound systems and finding solutions to problems that arise in various events.

After entering the university, I had the opportunity to work both in Studio and Live Sound, as well as to tour concerts with various artists over the course of 4 years.

I worked and studied at the same time to build my experience and network.

**What do you feel about the industry?**

I continue to see that the industry has good growth potential. Concerts, parties, showbiz related events as well as marketing events that includes product or real estate launches need the industry's expertise to create a wow impact for their target audience. Of course, unfortunately COVID-19 has had a direct impact on the industry. I did not expect it to last this long but I have accepted the situation and have used the time to adapt, learn and develop myself by keeping up with the latest technologies. What is very important and necessary for me to be able to live in the present.

**What is your most memorable experience and why?**

Having been involved in this industry for some time, I do have a lot of unforgettable experiences but if I have to choose one that I am most proud of it would probably be my assignment to design the sound system for the “Thai Armed Forces Day”. The sound was designed to cover an area of 550 meters wide and 170 meters deep without any obstacles in the area because the entire area will have more than ten thousand people. The sound system had to complement and be intelligible amidst sounds emitted from fighter planes, helicopters and tanks being driven. The guest of honour was the King of Thailand and so it was a huge task which thankfully was concluded successfully.

**What was your worst experience and why?**

There was this one time where I was working as the Sound Engineer while on tour for an artist. Everything went according to plan during sound check but near the showtime I was informed that the mixer board had a problem. I am pleased to say that everyone including the artist were co-operative. I was able to resolve the system fairly quickly because the design of the system was based on basics. I would say do not do anything that is unduly complicated. This will make it easier to troubleshoot and solve problems quickly.

**How exactly has the evolution in technologies impacted your line of work?**

I would say the evolution of today's technology has made work easier. If talking about the design it is convenient in the aspect that we can now simulate and check the results instantly. This makes it easy to decide what improvements can be made to achieve the best performance.

**What are the products / technologies that are absolutely crucial to your workflow?**

**Do you have a personal favourite among them? If so, please let us know why.**

I am someone who can use any device. I believe that every product under the different brands would be of world-class standard. The important thing is that the user must study and understand the equipment thoroughly in order to use it for the benefit of work. Of course whoever is supplying the equipment must also ensure that it is in perfect working condition so that users like me can do our job well.

**Do you have any Hobbies outside of work and what is it?**

My favourite hobbies are listening to podcasts for business, social and technology including watching concerts, listening to music, watching movies, exercising, meeting friends in the same field, exchanging views and ideas on work and living.

Do you have any professional training or certificates?  
I attended the past training courses as follows:

- \* Sound System Design by Bob Mc Carthy
- \* Training by L-Acoustic
- \* Training by One System relating to d&b audiotechnik
- \* Adamson training by Sonos Libra

- \* db technology training by Sonos Libra
- \* Smaart training conducted by Sonos Libra
- \* Digital Audio Network training by Yamaha
- \* Basic sound system training by Yamaha
- \* Allen & Heath digital mixer training by Sonos Libra
- \* DiGiCo SD Series mixer training by Fuzion Far East

**What did you do during the COVID-19 period?**

We, especially the events industry were all badly affected by COVID-19. I think I mentioned this earlier, that is, to live in the present. So I planned what I wanted to achieve and set about doing them during this period. So here are some of the things I got involved in:

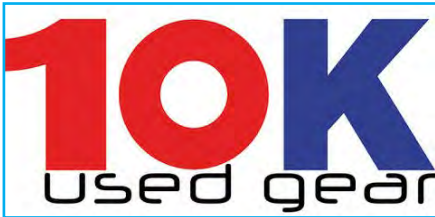
Since our equipment at VL Sound and Light was unused and some were deteriorated, I went about to ensure a proper maintenance programme so that when things start to pick up, our equipment will be in perfect working condition. Those equipment that had deteriorated, I looked for new replacements that would work seamlessly with the equipment we already had. I also organised internal training to help colleagues increase their knowledge and skills so that they work more efficiently.

I strategised with the team to help support customers in tuning their sound systems or create a new lighting programme. We also offered our services to install lighting systems for a range of end-users including hotels, government agencies, theatres. It helped us build our current relationships and network with potential new customers.

I worked with the task group within VL Audio, responsible for developing and designing our own products. We had to ensure that it met the highest quality and needs of users. We have developed a range of our own products such as Line Array Speaker, Active 2 Way Speaker, Ceiling, Wall Mount, Power Amplifier, Digital Signal Processor, Audio Cable, Speaker Cable, Connector, etc.

As mentioned at the start I also lectured on sound and light.

In terms of quality of life, I spent 6 months in ordination, studying and practising Buddhism in order to practice meditation, mindfulness and wisdom so as to handle defilements and to live happily.



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**Enquire**

**Lab Gruppen PLM 10000Q**  
**€3,000.00**

For sale used Lab Gruppen PLM 10000Q Power Amplifiers in excellent condition. Price shown is per piece. 20 in stock.



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**Adamson S10 and S119 Package**  
**€52,105.00**

For sale a package of 8 x Used Adamson S10 and 4 x S119 in excellent condition, ex-demo. Price shown is for the complete package.



**Enquire**

**10K fEEbEE LED RGBACL Engine**  
**€ 830.00**

10K fEEbEE LED RGBACL Engine: Retrofit into original ETC Source 4 luminaire. Protocols: DMX/RDM . 5-pin XLR in/out. PowerCon connection. Coloured RGBACL. Min CRI 98 3200K S4 19°6m 2822 Lux 1.8m dia; Min CRI 98 5200K S4 19°6m 2822 Lux 1.8m dia.



**Enquire**

**d&b Audiotechnik T10 Package (16)**  
**€35,295.00**

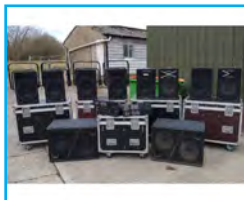
For sale a package of 16 x d&b Audiotechnik T10 2-way loudspeakers in excellent condition, looks like new. Price shown is for the package.



**Enquire**

**ETC Source Four LED Lustr+ EDLT**  
**€790.00**

For sale used ETC Source Four LED Lustr+ 19° Lighting Fixtures in good condition (7460A1251 Engine). Price shown is per piece. 5 in stock.



**Enquire**

**Meyer Sound Ultraserie PA System**  
**€7,285.00**

For sale a used Meyer Sound Ultraserie PA System in good condition. Price shown is for the complete system.



**Enquire**

**Barco F90-4K13**  
**€12,995.00**

For sale used Barco F90-4K13 Ultra HD Projectors excellent condition. Price shown is per piece. Includes flightcase.



**Enquire**

**Allen & Heath iLive-T80**  
**€2,500.00**

For sale a used Allen & Heath iLive-T80 Digital Audiomixer in very good condition. Price is for 1 x Mixer and comes with Stagebox, Desklight & Flightcase.



**Enquire**

**Green Hippo Boreal+ 4x SDI Port**  
**€22,945.00**

For sale a ex-demo Green Hippo Boreal+ Media Server 4x SDI Port in very good condition. Price shown is for 1 x piece.



**Enquire**

**JBL VTX A12 Package**  
**€415,000.00**

For sale a used JBL VTX A12 Line Array System Package. All in excellent condition, almost new. Price shown is for the package.

**PRICE MIGHT DIFFER AT  
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