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FAREWELL FIT FOR A KING

Creating the King's cremation grounds

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Gold-plated K-array KV52XGs installed in the Royal Crematorium



Groundwork began with cable laying in May 2017



Electro-Voice ZX5-90 PIs on stands positioned around the site



A farewell fit for a king

Mr Paraupamacharoen and Mr Juntasri of PRD flanking Vision One's Mr Puytrakool

When Thailand's King Bhumibol Adulyadej passed away in October 2016 after reigning for more than 70 years, the nation lost a loved leader. **Thomas Mittelmann** reports from the king's cremation grounds

KING BHUMIBOL WAS THE ONLY KING MOST THAIS HAVE

known, an icon of benevolence and peaceful progress with many wide-ranging talents. One year after the monarch's passing, his cremation was to be carried out in a magnificent and respectful ceremony according to ancient traditions.

Preparations for the five-day Royal Cremation Ceremony from 25 to 29 October 2017 began early in the year, following a 100-day mourning period. The Thai government's Fine Arts Department (FAD) took the lead in planning, design and construction of the cremation site, including the crematorium itself, all supplementary buildings and structures, and all royal and religious decorative elements.

The crematorium site was to span more than eight hectares – the equivalent of more than 10 football pitches. This was situated within Sanam Luang, a large open space used for many royal and state ceremonies located next to the Grand Palace in Bangkok.

Sound reproduction for royal Thai ceremonies has long been in the hands of the Government Public Relations Department (PRD), with project inspector Srimuang Juntasri taking ultimate responsibility, as he has for many other events in his 30-year career. 'We had three basic requirements,' explains Mr Juntasri. 'If visible at all, the sound equipment must perfectly blend in with the structures on site; everything must be heard everywhere all the time; and it must sound perfectly good.'

Indeed, the music and prayers were to play a valuable role in determining the order of ceremony in the absence of a programme of events, or a clear view for all spectators.

The PRD invited a number of audio integrators to bid for the contract instead of appointing its long-standing contractor. PRD's leader, Lieutenant General Sansern Kaewkamnerd, broke from tradition and introduced a different selection process. Bidders were given 30-minute, back-to-back windows to present their solution to a PRD committee of eight. 'We wanted the best solution, and we wanted the procedure to be as fair as possible,' explains Mr Juntasri. 'We discussed the proposals behind closed doors, then voted among ourselves for the best solution.'

Vision One was declared the winner. 'This was a masterpiece of transparency by PRD,' says Tanapat Mongkolkosol, Vision One's chief operating officer. 'We were not even the cheapest bidder, but we had put a lot of effort into coming up with the best-possible solution.'

Work began on 2 May by laying cables in the ground. Mr Mongkolkosol, his project manager Tharin Puytrakool and their team had five months before rehearsals began in early October. 'We are so proud that we were able to do this job,' recalls Mr Puytrakool. 'All focus went into it; it was given all the attention and time it deserved and required. Our system architecture is built on Dante signal transport over a ring of fibre

optics to connect multiple digital mixers across the venue and its several buildings, with a second fibre optic ring plus a Cat-6 ring as another reserve.'

The technology was initially met with scepticism by PRD. 'We had only ever worked with analogue equipment, so we were wondering how well this would perform, and how reliable it would be,' says Paj Paraupamacharoen, project supervisor for PRD. 'But after all, it's not brand-new technology, and Vision One convinced us, with positive results from their other projects, that we had nothing to worry about. Rather the opposite; that we could clearly benefit from digital technology here.'

In addition to overcoming the client's doubts, more hurdles needed to be jumped by Vision One. 'When comparing the initial plans for equipment with the actual conditions and needs due to the programme of the ceremony, for example how many mixing consoles to place where, we realised shortly after beginning work that the plan was not practical, and that we needed more gear,' explains Mr Mongkolkosol. 'So we had to bring in more. The contract was final, no amendments, but this event is a once-in-a-lifetime opportunity for us and the nation, and there was no question that we would do whatever it took to make the system work the best way possible.'

Another challenge was PRD's requirement to conceal all sound equipment. 'We showed the PRD and FAD a number of different speaker models capable of meeting the specs,' continues Mr Mongkolkosol, 'many of which they found unacceptable from their appearance. Thankfully, we have solutions in our portfolio that not only perform but also blend into the environment very well.'

The most important and visible structure was the Phra Merumas (Royal Crematorium) itself. Based on Mount Sumeru, a sacred mountain in Buddhist cosmology, this golden structure



Some of the 54 L-Acoustics 5XTs in the Royal Merit-Making Pavilion

was heavily decorated with animals and mythical creatures and had nine spires, the tallest of which – at more than 50m – housed the cremation pyre itself.

As very few people set foot in it, high-output audio wasn't required here, so Vision One installed 16 gold-plated K-array KV52XG 50cm ultra-flat and eight gold-plated KZ12XG 10cm mini line array elements. 'We are proud to be the first worldwide to use gold-plated K-array speakers, and also happy they were available because they are almost invisible in their surroundings,' says Mr Puytrakool.

The designer and architect of the crematorium, FAD's Teerachat Veerayuttanond, agrees. 'In such environments, we do not want to see equipment like lighting fixtures or loudspeakers, if possible,' he says. 'These gold-plated units, however, are an acceptable solution thanks to the matching of the surrounding surfaces. It was good that we had meetings about finding a solution for this specific case early in the planning stages so we were able to prevent potential problems.'

On three sides of the crematorium were several pavilions, each with a specific purpose. The largest and most significant, at 155m long and over 40m wide, was the Royal Merit-Making Pavilion. The throne of the new King Maha Vajiralongkorn was located here and, during the cremation, it offered seating for 3,000 members of the Thai and other royal families, domestic and foreign government officials and other dignitaries. A stage accommodated monks whose prayers were picked up by Sennheiser ME34/MZH3072 gooseneck microphones.

Above the high windows stretching the length of the building, Vision One installed 54 L-Acoustics 5XT ultra-compact coax



Mr Paraupamacharoen, Mr Mongkolkosol, Mr Juntasri and Mr Puytrakool in the Royal Merit-Making Pavilion

enclosures. 'These speakers are small, sound good and do not compete with the room's décor,' says Mr Mongkolkosol. A further two wall-mounted, white K-array KV50W 50cm ultra-flat line arrays provided in-fill near the entrance.

Outside, at columns supporting the roof of the Royal Merit-Making Pavilion, as well as on walls of other pavilions facing the crematorium, a total of 16 K-array KK102i W 100cm variable beam line array elements were installed to cover the area. 'Again, these speakers are the best fit for this environment,' explained Mr Puytrakool. 'They were instantly accepted by the PRD and FAD; they are weather-resistant, have the right dispersion and reproduce the source sounds satisfactorily.'

'Whenever we were getting ready for a few more hours of tweaking and tuning the system, the kind gentlemen of the PRD were signalling that they were already happy as it was,' added Mr Mongkolkosol, 'but we kept optimising anyway. However, spending all this time together on site, it was a more than content client-supplier relationship, and greatly cooperative.'

To provide audio for the large open space where marching bands and other troops would appear and perform, as well as around the outer perimeter of the site, Vision One positioned 40 Electro-Voice ZX5-90 PI 15-inch 2-way weatherised cabinets, with eight TOA Straight Horns mounted up on masts for long throw.

Sound also needed to be provided inside the four Dismantling Halls that held the royal urns and other items used during the cremation ceremony, six pavilions built for government officials, eight more for attending prayers and finally four for other officials as well as musical ensembles playing during the ceremony.



Sennheiser ME34/MZH3072 microphones to pick up the monks' prayers

'Classical and traditional Thai music is a firm part of the ceremony and was played live by ensembles around the clock during the ceremony days at different locations,' reports Mr Mongkolkosol, 'sometimes with Thai classical dance performances and similarly with monks' prayers.'

Vision One distributed 86 Electro-Voice EVU-1062/95 compact 6.5-inch 2-way loudspeakers across the pavilions. Four of the pavilions served as stages for the musical ensembles, with the speakers serving as monitors for the musicians. These four pavilions were also used by the Vision One crew as sub mix stations to receive input signals from nearby sources, including the ensembles, marching bands, other gatherings and their commanders. Microphones and wireless RF systems were all Sennheiser, summed up in compact Roland M-300 or M-200I digital consoles, then sent via Dante over fibre optics to the main control room.

The sub mix stations, each manned by four Vision One crew members, also housed amplifier racks powering nearby speakers.

In the main control room inside the Royal Merit-Making Pavilion, Roland M-5000 master and M-5000C slave digital mixers gathered signals from live sources and sub mixes, pre-recorded and broadcast sound, fed sums back to amplifiers and provided broadcast feeds.

The 30-member Vision One crew was onsite almost continually during system setup and commissioning, weekly rehearsals that began on 7 October and finally the five days of the cremation ceremony. 'It's been an honour to do this work,' says Mr Puytrakool. 'There were several touching, even sad moments, and most of us shed tears every now and then, but we're thankful and proud to have been part of it.'

'We are very satisfied with the work done by Vision One,' adds PRD's Mr Juntasri. 'Their team was knowledgeable and supportive, reliable and attentive to detail; a pleasure to work with.'

However, their work did not finish at the end of the cremation ceremony. Two days later, the entire site apart from the Royal Crematorium itself was converted into an exhibition of the late King Bhumibol's life and achievements. An anticipated five million visitors were expected to have seen this before the site was set to be dismantled in January 2018.

For the duration of the exhibition, the audio equipment remained in place. 'It's there for announcements and perhaps background music,' says Mr Mongkolkosol. 'After dismantling the site, it will be installed in other royal, state or religious venues. So it won't be wasted but will keep on doing good service.'

And this repurposing of equipment for future events is one of many ways in which King Bhumibol's legacy will live on in the country that cherished him as their leader for seven decades.



Sennheiser ME67 shotgun mics were positioned in front of the marching bands

www.finearts.go.th
www.prd.go.th
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