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TX2152, TX1152FM and TX1122FM provide stage monitoring



The venue reportedly forms one of the largest auditoriums in Iraq



The NetMax N8000 controller installed in the rack alongside 17 TG-5 amps

An interior encased completely in marble saw APCO taking a leap into the unknown at Baghdad's Um Alqurra complex. **Simon Luckhurst** reports

THE DAYS WHERE A BRAND NEW LINE ARRAY INSTALLATION excited the hairs on the back of your neck has probably passed for the majority of *Pro Audio MEA* readers. Their ability to better control coverage and to potentially drastically remove reflections has almost made them the all-in-one solution for large and complex audio environments, and a very common sight in multipurpose auditoriums. This is not the case everywhere, however. When the Sunni Endowment – a quasi-governmental agency responsible for Sunni mosques in Iraq – announced plans to build a 2,750-capacity hall at the Um Alqurra complex in Baghdad, the planning specification for an auditorium encased in marble would be enough to make even the more heartened sound engineer weep. Having acquired responsibility for the entire mosque complex in 2007, Sunni Endowment had a broader vision for the site, and was aiming to host a variety of high-profile events, from religious and political conferences to musical performances and general meetings. The only solution, decided the team at Acer Palace for Electronics and Equipment Trading (APCO), which was responsible for the installation and commissioning of a complete audio system into the venue, was a line array.

'When our team learned of the Sunni Endowment's intention to build one of the largest halls in the country out of marble, the first thing that came to our minds was, "how will it be possible to create decent sound?"', explains Ali Saad Shakir, coordination and logistics for APCO. 'Furthermore, the use of acoustic treatment was out of the question. Line array designs were suggested by Electro-Voice applications specialist Tony Sawyer, but nobody in Iraq had considered using line arrays in a large, permanent sound installation – it was a real challenge to convince the client.'

APCO commenced work on the project by running cabling and manually hanging the main L/C/R arrays above the stage area, but despite an initial completion date of June 2015, was subsequently required to have everything finalised some six months earlier. Ten Electro-Voice XLC per side were selected

for the outer hangs, with six XLE for the centre-fill and eight XLCI215 dual 15-inch subwoofers delivering low-end. Further front-fill coverage is from six EVU-2062/95 dual 6-inch full-range speakers placed along the lip of the stage. Additionally, a stage monitoring system was installed comprising TX2152 side-fill speakers, TX1152FM 15-inch and TX1122FM 12-inch stage monitors, powered by four 1,000W CPS 4.10 amplifiers. A NetMax N8000 digital matrix controller also provides overall management of the monitoring system.

'After assigning the location points of the speakers, we managed to complete the cabling work and install the speakers manually without using lifters or motors,' continues Mr Shakir. 'The cabling runs to a nearby room where 17 TG-5 power amplifiers for the speakers and an N8000 Master DSP are located. An assortment of EV mics including a REV wireless microphone system were deployed in the auditorium, and line inputs were distributed to the control room, in the hall (for broadcasting) and near the stage.'

The team reassembled onsite in November 2014 to finalise the project by configuring the N8000 matrix controller. 'We first made a draft scheme to handle the power amps and to distribute audio signals to the speaker clusters, and linked the input source to the N8000 Ai card directly,' he furthers. 'Finally, almost a year after installing them, we heard music coming out of the overhead speakers and it sounded perfect – it was like a dream. At this point we realised just how effective line arrays can be in such halls; there were no notable reflections.'

Less than a month before completion, the company also realised the need to link up broadcast line-ins to the audio system, as well as for full control of the stage monitoring system. To cater for this, Mr Shakir chose to use a Dante-equipped Yamaha CL1 with Rio3224. The mixer was located approximately 100m from the stage in the control room and linked to the stage boxes via Dante using a UTP cable and two D-Link routers. The N8000 was re-programmed to interface with the console, and the audio path from the stage monitors re-routed to allow for

gain adjustment directly from the mixer. 'The ability to control Iris-Net on the N8000 via Wi-Fi was very beneficial,' recalls Mr Shakir. 'It helped us with customisation and figuring out new ideas that could not have been easily achieved using traditional methods.'

Just prior to opening, the team completed audio tests of the BGM and microphones at various sound levels and discovered that the system was a 'bit too big' for the 2,700-person space. 'We tilted the centre fill (XLE array) to fire up into the middle of the audience area, knowing that the majority of guests will be in that part,' he adds.

The hall opened on January 6th 2015 with a celebration event for the Sunni Endowment. A large number of VIPs attended, and it was broadcast by several local satellite channels. 'We handled the audio and lighting systems while at the same time paying close attention to the action on-stage. It was a great first test of the design as we had to link up the audio system with broadcasters and cameramen by using stage boxes and extensions. It was fun and a really amazing experience,' recalls Mr Shakir. 'Hearing people's opinions on the sound quality was really encouraging.' The hall's management is also very satisfied with the system and described it as 'modern and unique'.

APCO has returned to manage the audio production at Um Alqurra several times in the year since its installation, including for an international religious conference, a conference aiming to unite Iraqis, the appointment of a new Sunni Endowment CEO and a conference on counter terrorism and peace through Islam. With final results far exceeding expectations, the work at Um Alqurra will surely serve as a reference in the country for similarly ambitious projects.

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