

Michael Jackson X Cirque du Soleil IMMORTAL WORLD TOUR

Meyer Sound LEO

~ next generation array speaker system



特別 企画

Michael Jackson: The Immortal World Tour by Cirque du Soleil came to Japan. The Asia-Oceania tour, which started on May 9th at Saitama Super Arena in Japan, is to end in this October. Followed by 30 shows in five cities throughout Japan, more shows are scheduled in sixteen major cities in Taiwan, Korea, China, Australia and New Zealand. The Immortal World Tour kicked off on October 3rd of 2011 and has been going on for three years all over the States and Europe. We could make an appointment to visit at Yokohama Arena on May 16th, the first day of the performances.

During the sound check before the show and after the performance, we interviewed Mr. Sylvain "Patou" Lemay, a crew chief & SIM engineer, and other audio crews. Also, we contacted Mr. Francois "Frankie" Desjardins, a sound designer of the tour, and he kindly answered to our questions.

Written by Tetsuyuki Matsuki (S.C.Alliance)



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Prosound 23

World-wide amazing entertainment completed after two years.

My first impression of the show could be phrased in one word, “I saw the best of show entertainment.” This type of show would have had a tendency to become a collection of hit songs, but it was not like that. A leading pantomime actor represented the soul of Michael Jackson and his fan’s memories as well as their love of Michael, and he served as a silent storyteller through the show.

The framework of the show reminded me of THIS IS IT, and after the show, I was filled with a warm feeling. Perfectly collaborating with Michael’s voice, best-skilled eleven musicians performed soulfully. Great dancers and outstanding acrobatic performers were also impressive on the stage, making full use of video projections, lighting, and LEDs (synchronized using DMX/Wi-Fi). I first recalled “LOVE” at MIRAGE, a Cirque du Soleil show based on THE BEATLES, however, this show is more like a rock concert.

It was on June 25th, 2009, when Michael Jackson suddenly passed away during the term of rehearsals for his tour, THIS IS IT. I still remember clearly that his documentary movie, Michael Jackson’s This Is It got released simultaneously all over the world including Japan, where half a million people went to see the movie just for four days from October 28th through 31st. The Immortal Tour could be referred to as a tangible form which Michael Jackson’s music and his messages were converted into through the eye of Cirque du Soleil. Cirque du Soleil and creators for THIS IS IT commented that it took two years to create the show. We assume that a rough idea of the show came up in autumn of 2009.

Interview with Sound Designer Mr. Francois “Frankie” Desjardins “What is LEO?”

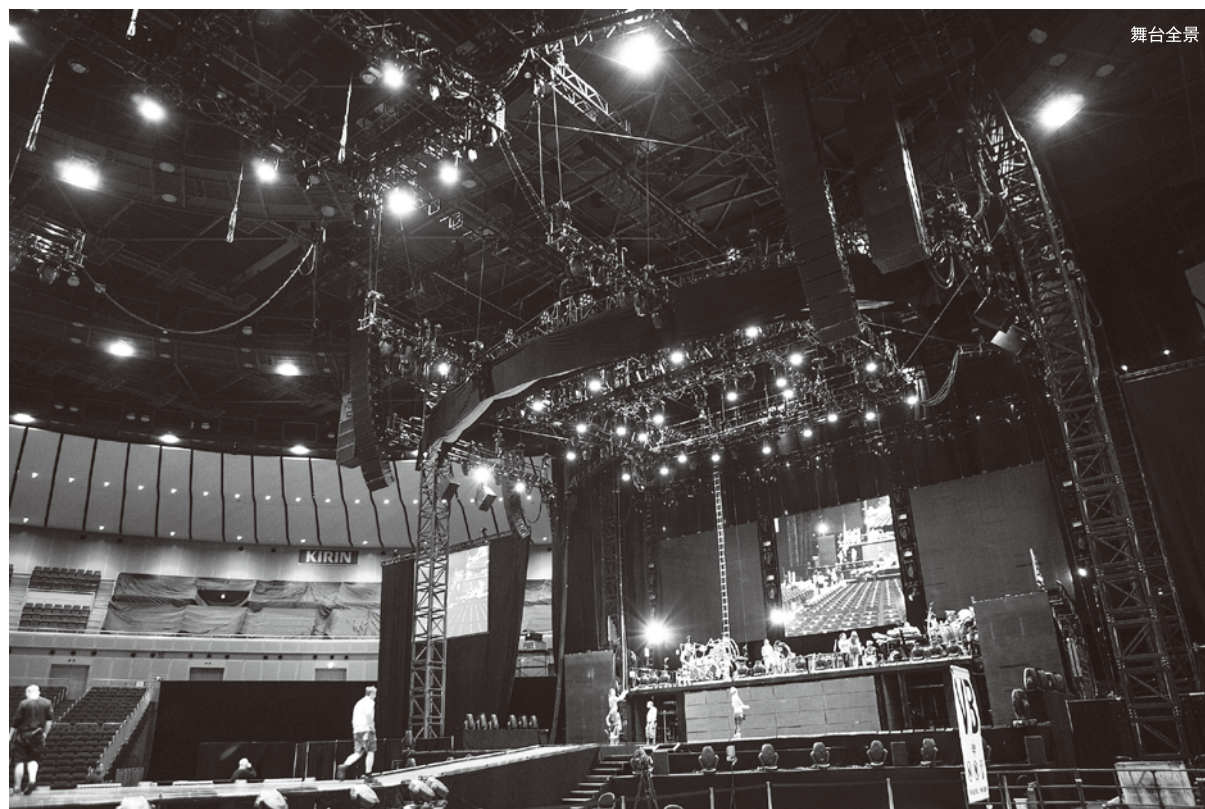
Among 26 famous creators for the show, a sound designer, Frankie is also known for a sound designer for Celine Dion. We asked him about the process of the show creation.

PROSOUND (PS) To create this show, what was the word representing your producer's intention?

Mr. Francois Frankie” Desjardins (FD) At the beginning of the project, the demand from the Cirque management was to create the biggest rock show on earth! At the image of Michael Jackson....

PS During two years for the show creation, what was the sound-relevant schedule like?

FD I had to submit a preliminary PA design only a few months after the project started, so early April. A preliminary equipment list by August 30th 2010 Design built by March 5th 2011 Final Equipment list by March 7th 2011 Delivery for July 11th 2011 Load in in Arena August 15th 2011 Setup and Load In in Montreal September 11th 2011 Setup and Load In Quebec City September 21st Setup Load In and show, Montreal September 29th. “A high power system that can be as light as possible” was expected for the MJ tour, so the weight that can be allocated for the speaker would be quite small. In the meantime, I got contacted by Meyer Sound, which I have a long-term relationship. Then, with a big help from Solotech, I got involved in the final stage of the development of Meyer Sound new speaker, LEO.





Francois "Frankie" Desjardins



Sylvain "Patou" Lemay and Martin Paré



Renatto Petruzzello



Greg Rule

PS Could you explain how you got involved in the development of LEO?

FD I started to exchange meeting and conversation with John Meyer right after I finished the Celine Dion tour in 2009. When Helen Meyer heard I was hired as sound designer for the MJ Immortal Tour, she reached me and told me the new speaker was almost ready, if I was interested. Of course, I was curious about it. We did some demos so I can be convinced it was the right way to go. After the last demo, Meyer propose to use an almost finish "beta" system for the tour. While using the beta version, we analyzed the result and provided honest feedback to improve the product.

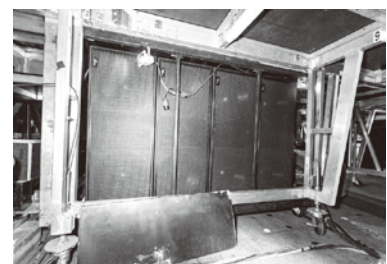
PS We hear that the beta version was replaced with the current LEO-M during the world tour in Europe. It would be helpful if you could explain this more, using some specific examples in the process of collaboration.

FD We told them our point of view on the different aspect of the new product. We participate in discussions about sound, rigging, power distribution, signal distribution, transport system, etc. It was a great experience to try to influence John Meyer and is team. I think, the result of this, is a great product that seem appreciate by many.

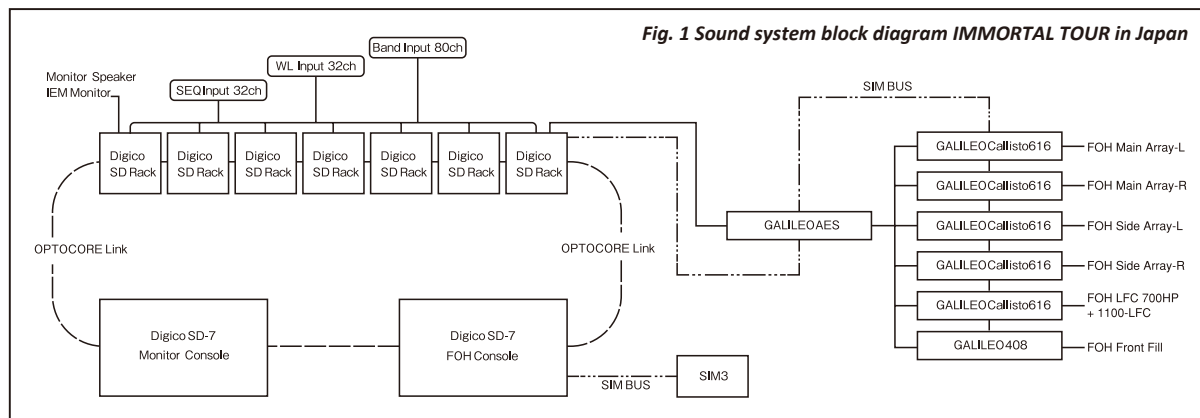
The work done by the team on the road and Meyer Sound staff (Luke Jenks and his team) was indispensable for this project to be successful. I think the most impressive part of the collaboration is to have a finish product that everybody love and accept. We had uniform coverage of the audience and great flexibility from the electronics so the creative process was not limited by the hardware. In this kind of process, it is hard to say which part we change or improve. It is a team effort. I think we had positive influence on many parts of the final product. The LEO system is the latest achievement from John Meyer and his team. They improve every aspect of this sound system compare to the previous generation of Meyer line arrays.



Flown speaker system consists of LEO-M, MICA, 700-HP



End-fired 1100-LFC under the stage



PS Could you please elaborate on how great the LEO system is?

FD Better HF control on both axis, better predictability of the behavior of the system, great sounding new components, impressive dynamics, really low distortion even at high level, fast and safe installation, impressive amount of peak power, seems to be really reliable (as previous models), and new drive system (Callisto, etc) that give us new sets of tools to optimize the system in harsh acoustical environments. With all these features, everybody's job, on the sound crew, has become a little bit easier.

Interview with Sound Crew

On the first day of the show at Yokohama Arena, the acrobatic team of Cirque started practicing at 1 pm preparing for the show from 7 pm, while the musicians were supposed to show up at 3 pm. In the meantime, audio engineers repeatedly verified the sound system using the audio sources which have been recorded from MADI OUT of DiGiCo SD7 using 112 channels. Before the sound check started, the chief engineer, Mr. Sylvain kindly showed us around all audio sections, and we could interview several key engineers. During the world tour, some of audio crews have been replaced, and the following seven people are current crews for the Japan tour; FOH Engineer: Martin Paré, Monitor Engineer: Renato Petruzzello, System Engineer/Crew chief: Sylvain Lemay, Wireless/Communication Technician: Marc-Olivier Magnan, PA Technician: Hilario Gonzalez, PA Technician: Marc Depratto, Sequencer: Greg Rule. These young elite engineers support the show every day.

The main sound system Meyer Sound LEO ~Mr. Sylvain Lemay~

PS Could you briefly explain the audio system?

Sylvain Lemay(SL) There are 166 input channels(* 80 channels for musician, 32 channels each for WL and Sequencer, 22 channels for Backup and effect), which are distributed to two DiGiCo SD7 consoles for FOH and Monitor on an OPTOCORE Optical Network Ring. In total, seven SD racks are being used. MADI outputs of SD7 for FOH are used for the recording. We are also using MADI stream. Two of SD racks are dedicated to the wireless and the wireless engineers just pick up the MADI feed to introduce into a computer to monitor all the wireless channels. The Radio Act in Japan is strict, so we had to reduce the channels, from 32 channels to 10 channels for the radio microphone, and from 18 to 10 for IEM. Because of this, we were forced to change the visual of the show, reducing some scenes that musicians get down on the stage to perform, for example. During the world tour, these changes were made only in Japan.

PS How about the outputs?

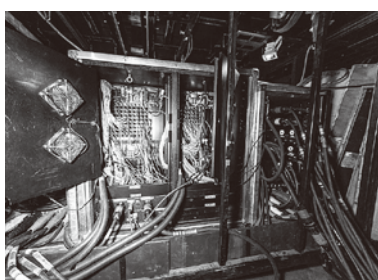
SL The signal from FOH is being sent to a processor, Galileo AES. Then it is sent from the digital outputs of AES to the main array system (14 LEO-M + 4 MICA) as well as each side array system (6 LEO-M+8 MICA). One Galileo Callisto616 takes care of the low-frequency range. 8-each 700-HP subwoofers are arrayed on the both sides of the stage using Inverted stack configuration (two of the cabinets facing backwards) to control low frequency. 12-each 1100-LFC subwoofers per side under the stage are arranged using End-Fire configuration. Galileo408 through Galileo AES drives the Front Fills (2 UPA-1P, UPA-2P, and UPJ-1P) per side.



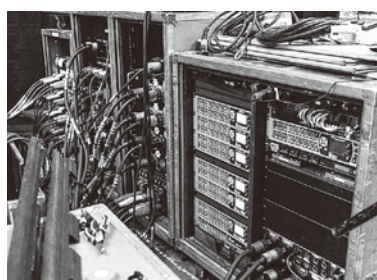
Sylvain explains about some control softwares for LEO



SIM3 for tuning the system



SD rack under the stage



Galileo Callisto616

PS We hear that the approximate total weight of the flown speakers is 8,704kg. How did you deal with the weight issues, including video projections, lighting and trusses?

SL We usually try to use the maximum number of speakers and change the layout of the speakers depends on venues and the distance to cover. However, here at Yokohama arena, we reduced 1 MICA from the main array and 3 MICA from the side array. Concerning the weight regulation, we are using four trusses as a ground support especially for the video screen.

PS Could you tell us a little about sound level control (SPL) for the venue? Regarding this issue, the sound designer, Frankie says that Martin and Sylvain are doing a great job to maintain the right SPL for the show.

Martin Pare (MP) The maximum SPL could be more than 115dB near the center of the venue, but we try to keep 105 dB considering the audience includes children and elder people. Yokohama arena might be a little difficult venue due to a lot of flutter echo, but we assume that there will be no problem when the venue is full of the audience. Saitama Super Arena was easier to work with.

SL Each venue's capacity for the world tour in the past was as large as 18,000 and as small as 5,000, our average is about 10,000. With ample headroom of LEO, we have achieved 135dB SPL during our experiment, while keeping all the frequencies well-balanced .

PS How long does it take for the load-in and the load-out?

SL The LEO is very easy to use. This morning, it took 30 minutes to set up, with all the speakers covered, until the system goes up. Load-out is also quick. It takes one hour and 45 minutes by the time entire system is loaded out in front of trucks. Rigging for LEO, the front GuideALinks determine the loudspeaker's splay angle and are supposed to be pinned. While being lifted with the motors, the loudspeaker rotates on the axis of the rear GuideALinks and the front GuideALinks slide into position because of its weight and the gravity, at which point, the second pin is inserted to lock the splay angle. As for the load-out, when the pins are removed, the loudspeaker splay angles return to 0 degrees as the array lands in the caster frame, at which point the removed pins can be inserted to lock the splay angles at 0 degrees for safe transport. Because the system is so consistent, the tuning for LEO could be done in five minutes. But I am picky so I usually spend one and half hour.

PS Could you tell us about the power distribution system?

SL We use one distribution system supplied with 400V and 300 KVA from a power supply car to take care of all the sections. At our audio section, we use 220V to drive LEO system and 120V for other equipment. Since our company, Solotech has VEAM connectors which can be commonly used for audio, lighting and video, so it is very easy to combine each system. In case of emergency, we prepare UPS at every key section to restore the system within 15 minutes. In addition, we have arranged ground wires just for the audio system.



Renatto's ear monitors, which have the same spec as musicians and performers

Monitor system featuring IEM ~Mr. Renatto Petruzzello~

PS Could you tell us the outline of your monitor system?

Renatto Petruzzello (RP) We had to shrink the number of ear monitors due to the Radio Act in Japan. So, I will explain about our usual Wireless In-ear system as the main monitor. We allocate 18 channels for 11 musicians and several performers, with the signals stereo-transmitted. To compensate the low frequency range of IEM, we prepare 3 channels each for sub speakers used for a drummer, a keyboard player, and a percussionist. The performance area for the show consists of a main stage and two sub stages. For the side fills of the main stage, four MSL-4s are flown on the both sides. Acrobatic performers who act on the main stage listen to the sound coming from the main array. No wedges are on the main and sub stages. Here in Japan, operating the system is really complicated, since we manage to use 8 less channels for IEM.

PS What brand is your ear monitor?

RP We are using JH-16 of JH-AUDIO, which is 3 way and has eight drivers on one side. It is called Double Dual Lows/Single Dual Mid/Single Dual High, an excellent ear monitor with ample headroom to cover 10Hz ~ 20kHz using Dual Driven Technology.

An audio programmer in charge of Michael' s voice ~ Mr. Greg Rule~

PS Could you explain about your sequencer system to control the timeline of the show? (Mr. Greg' s booth is right next to the monitor booth.)

GR We are using three Apple Mac Pro Tower computers, considering for a backup. The software for the show is Digital Performer V.7 and the master clock is synchronized using Rosendahl Nanosyncs HD. Since we first planned a sound field for quadrant, 32 channels are used for the sequencer and 4 channels are for Michael' s voice. In addition, sound effects, audio sources from the keyboard, some instrumental effect, and the time code are included.

Musicians in Japan

Darrell Smith (*Keyboard/Band leader*)

Jonathan "Sugarfoot" Moffett (*Drum*)

Taku Hirano (*Percussion*)

Don Boyette (*Bass*)

Jon Myron Clark (*Electric Guitar*)

Desiree Bassett (*Electric Guitar*)

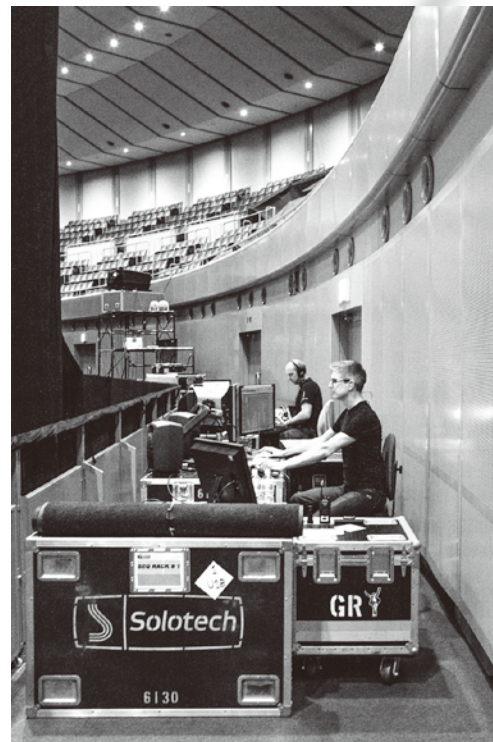
Fred White (*Back Vocal*)

Stevi Alexander (*Back Vocal*)

Keyon Harrold (*Trumpet*)

Michael Ghegan (*Sax*)

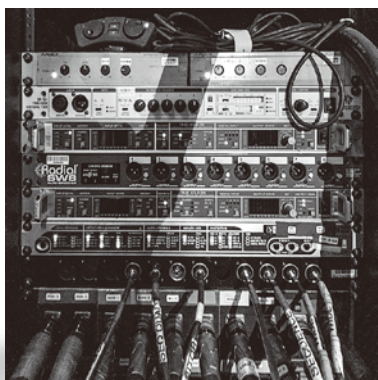
Mariko/TINA GUO (*Cello*)



Renatto and Greg working at their booth, where they showed excellent operations despite the challenging location in the corridor



A large signboard at the entrance of Yokohama arena



Playback device for Michael's voice — the heart of the show



PS How many cues are being used for the actual performance?

GR The show mainly consists of ACT 1 and ACT 2 and we use so many cues based on the live performance.

Then we asked Greg to let us hear the actual sound. He kindly showed us a quick demo by switching the sequencer to prevent the time code from running which would cause problems to other sections. Basically, one click per bar, the music started by two counts, three and four with Greg's voice, trying not to make unnecessary pauses for the performance. Since the tempo of many of the songs would fluctuate (and need a conductor), we assumed that they had inserted the clicks manually, and we realized their enormous effort devoted to the show. Also, I would like to take off my hat to his attitude because he accepted our troublesome request with smile-despite the busiest time just before the show.

Experiencing the LEO

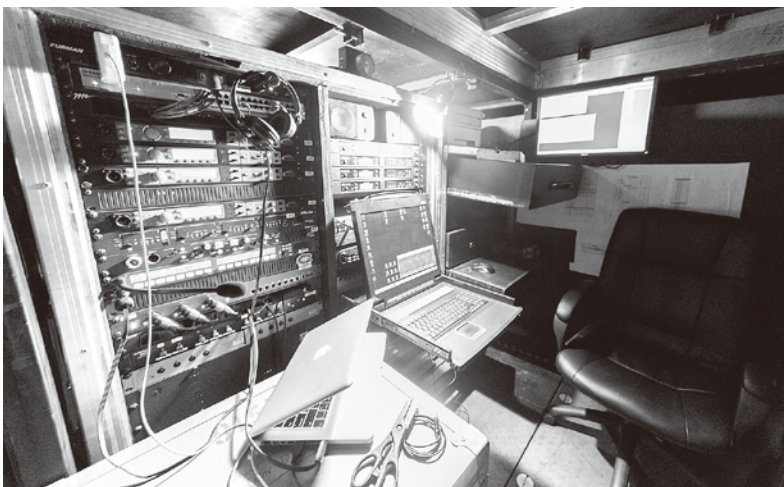
When the sound check for the musician finally started, we moved to several listening positions at the venue. I have visited here many times since I was involved in a grand opera called "Kaiko", an opening performance of Yokohama Arena. So I have decided my own reference area to listen to the sound. Most impressive position was the highest and most-rear seat where Low, Mid and High frequencies were really well-balanced. I could feel my shirt vibrating because of the low-frequency sound from kick drums. I could also hear the high-frequency sound spreading, which came from wind chimes in the percussion.

During BILLIE JEAN, which the FOH engineer Martin called 'the loudest song in the show'. I could not hear my voice even if I shouted loudly. I assumed that the SPL was over 105dB—with no distortion at high frequency—and I thought that it would be dangerous to control the sound level just by ear. As for low-frequency, I noticed high-profile different configurations are being used for two types of subwoofers.

I also confirmed that there was no lobe on the stage and the low-frequency energy uniformly-dispersed without gathering around the stage center, so I asked Sylvain some questions.

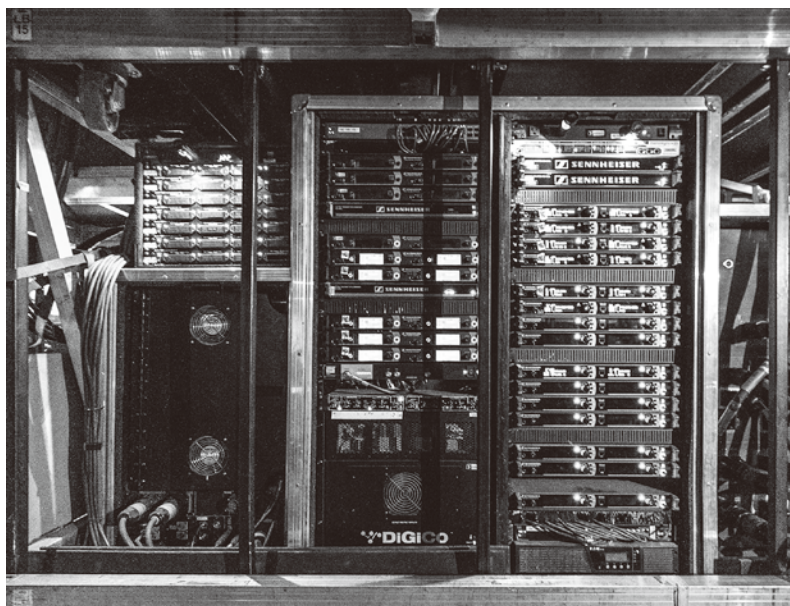
PS We hear that the subwoofers were replaced with Meyer Sound 1100-LFC in Europe during the world tour. Did you experience any changes in the sound?

Also, could you please explain about the configuration for each subwoofer?



Wireless/Communication Technician: Marc-Olivier Magnan's booth located right under the stage in severe environment with high temperature.

According to Sylvain, their usual wireless communication system is Tempest(2.4 GHz) and TELEX BTR(UHF) for the key 10 people such as a stage manager, rigging, prop, and medical staff, but here in Japan, Clearcom is used for all 21 people due to the Radio Act.



SENNHEISER wireless system rack for ear monitors and microphones

The tickets were sold out, and even the standing area was full of audience. When the show started, my brain nearly got occupied with a grand visual experience. Then, a leading mime man let out a little scream. His voice was pianissimo and the sound level was almost the same as his real voice, which brought a silence, tenses, and surprises to the audience. Until the last loudest moment of the show, my hearing sense has got heightened to the fullest, because of the power of the great sound design.



Photos : OSA Images, Costumes : Zaldy Goco, ©2011 Cirque-Jackson I.P., LLC

SL One of my biggest surprises was Meyer Sound new subwoofer, 1100-LFC. When we started the tour, we were using 24 to 28 another company's subwoofers under the stage. During the world tour, we received LEO-M and 1100-LFC. We found that the 1100-LFC was 25 % more powerful than the previous subwoofers. For me, 1100-LFC is most powerful subwoofer and we are really happy to try 1100-LFC. We use 220V to drive 1100-LFC. We use End-Fired configuration for the 1100-LFC (Figure 2).

The distance between the first row cabinets and the second row cabinets is 42 inches and so is between the second row and the third row. This configuration needs some space, but yields a lot of power. Subwoofers are omni-directional and create the same power both for the front and the back of the speakers. For this show, we tried to get rid of the lobe problems and we kept pretty much the same configuration all over the world. The flown 700-HP, which are more like a bass array in the 50Hz to 100Hz band, are arranged in cardioid arrays using Inverted stack configuration. The Floor 1100-LFCs are used as sub bass in the 30Hz to 63Hz, where they are most efficient. The combination of 700-HP and 1100-LFC makes the low-frequency sound rich and full.

