



# VOICE-ACOUSTIC REFERENCE

Project : Ewha Women's University  
Magok New Seoul Medical Center & College of Medicine

February, 2019

- ▶ Ewha Magok New Seoul Medical Center
  - International Conference Hall
  - Conference Halls, Chapel Hall, Funeral Hall
  
- ▶ Ewha Women's College of Medicine
  - The main Auditorium

## Project : Ewha Women's University Magok New Seoul Medical Center & College of Medicine

### ● Summary

- Ewha Women's University Medical Center began construction at January of 2015 and completed at January of 2019 at Magok, the new town in Seoul with New Seoul Medical Center and College of Medicine.
- New Seoul Medical Center has the Building Plan with 10 floor height with 6 floor basement, specialized on series diseases like cancers, cerebrovascular diseases, organ transplants and etc. This will be a new takeoff for Ewha Women's University Medical Center with joint research for new diseases, high-tech International Healthcare Center with premium Health Promotion Center.
- Brand new built Medical Center and College of medicine have optimized Audio and Video system installed for International conference hall, multipurpose auditoriums, a chapel hall and funeral hall.

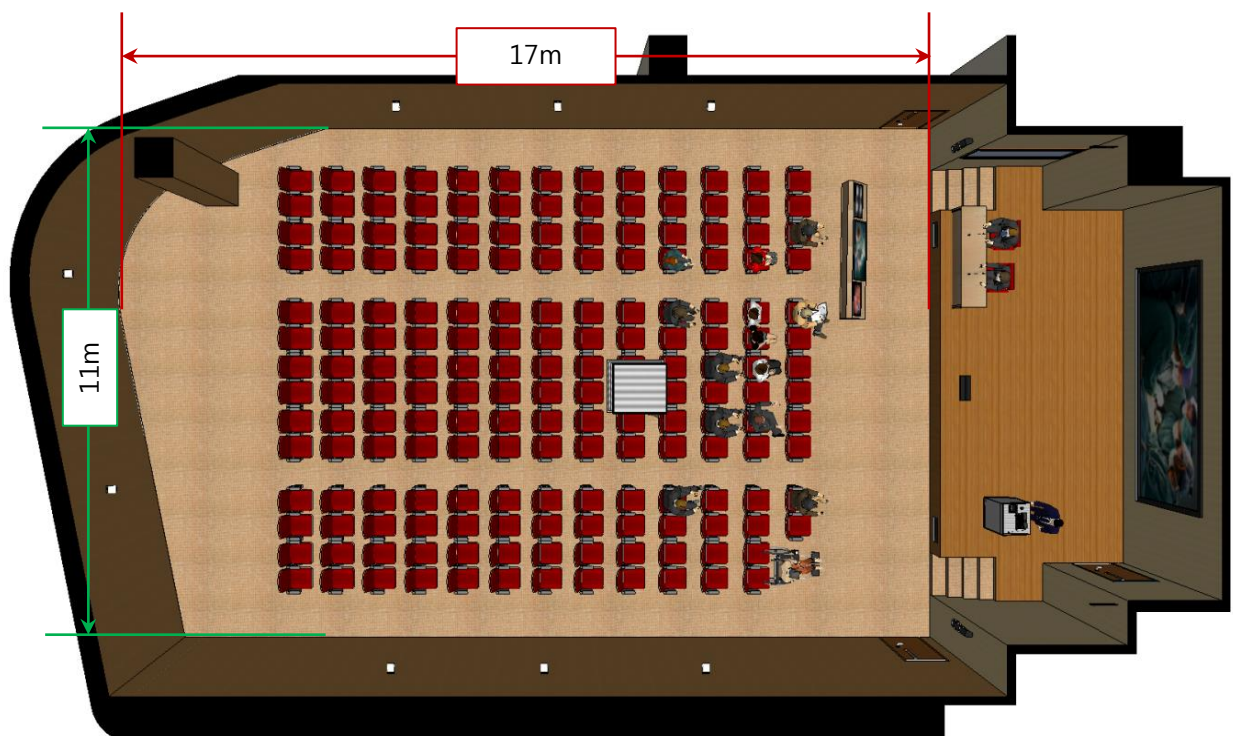


## Project : Ewha Women's University Magok New Seoul Medical Center & College of Medicine

### New Seoul Medical Center\_International Conference Hall

- The International Conference Hall holds multipurpose events with International medical seminar, live surgery, medical talk concert as well as medical center and school events.
- Audio Systems are mainly focused on speech for seminars and conferences with high articulation and practicable to hold small sized performances. Video systems with surround 7.1ch system are also available for hospital welfare to add a three-dimensional effect.
- International Conference Hall is 17m length and 11m width, three pieces of 4x4" line array speakers are installed with wall brackets as main speakers, the straightness and articulation of the LA-Sticks are excellent for speech focused seminar and conference audio system.
- Compact sized Paveosub-112 are used as Subwoofers reclaimed under the stage to strengthen the low sound to give more power to the audio system when this hall plays small concerts or movies.
- The center speakers are installed at the center of the ceiling with Score-5 for materialization.
- The most compact sized cube types, Alrea-4 x 8 pieces are installed as surround to give three-dimensional effect.
- Compact sized but still powerful frequency range dual speakers, Score-5 x 2 pieces are installed as stage monitors for convenient to stage management.

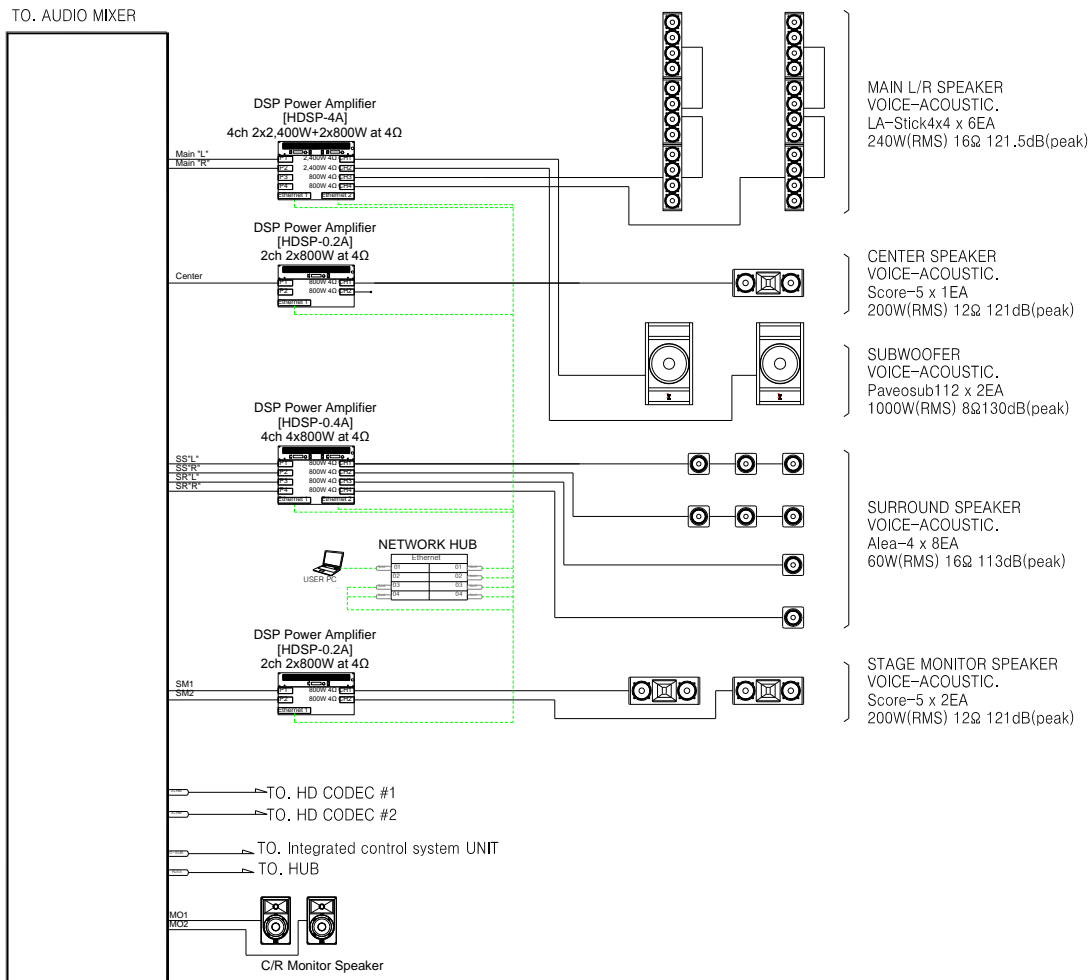
#### ● Room Size





## Room : New Seoul Medical Center\_International Conference Hall

### ● Audio System Block Diagram



### ● Product Lists

Description	Model	Specification	Q'TY	Remark
Main L/R Speaker	LA-Stick4x4	4x4" 120W(RMS) 16Ω	6 EA	
- Wall holder	Wall holder		2 EA	
- Tilt adapter	Tilt adapter		4 EA	
Center Speaker	Score-5	2 x 5"/1 x 1" 200W(RMS) 12Ω	2 EA	
Surround Speaker	Alea-4	4" 30W(RMS) 16Ω	8 EA	
Stage Monitor Speaker	Score-5	2 x 5"/1 x 1" 200W(RMS) 12Ω	2 EA	
DSP Power Amplifier	HDSP-0.2A	2ch 2x800W at 4Ω	1 EA	
DSP Power Amplifier	HDSP-0.4A	4ch 4x800W at 4Ω	1 EA	
DSP Power Amplifier	HDSP-4A	4ch 2x2400W+2x800W at 4Ω	1 EA	

## Room : New Seoul Medical Center\_International Conference Hall

- Audio System Rendering View



[ Front View ]



[ Main Speaker, Center Speaker ]



Room : New Seoul Medical Center\_International Conference Hall

● Audio System Rendering View



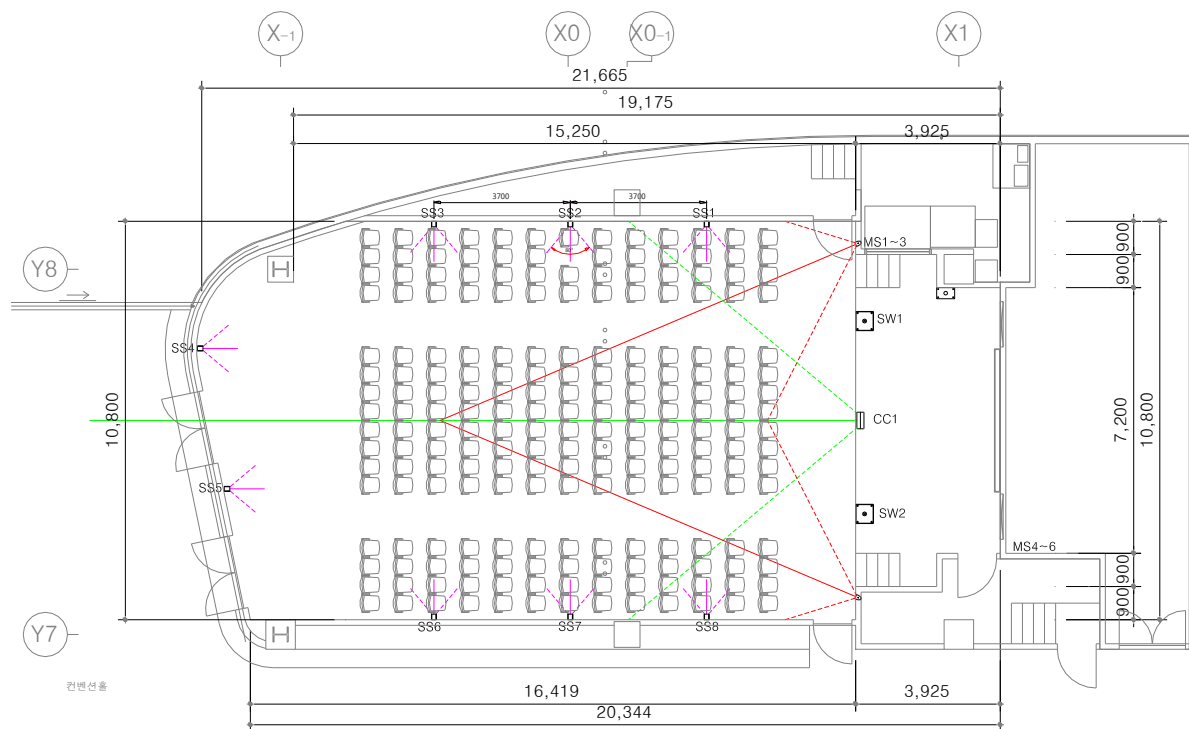
[ Subwoofer, Stage Monitor Speaker ]



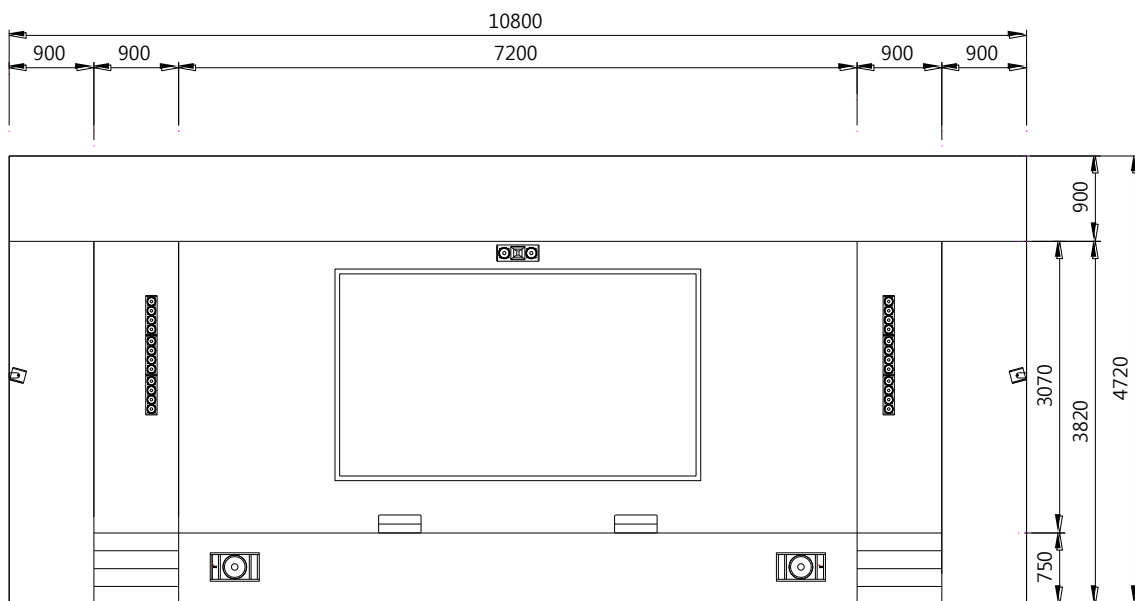
[ Surround Speaker ]

## Room : New Seoul Medical Center\_International Conference Hall

### ● Audio System plan layout



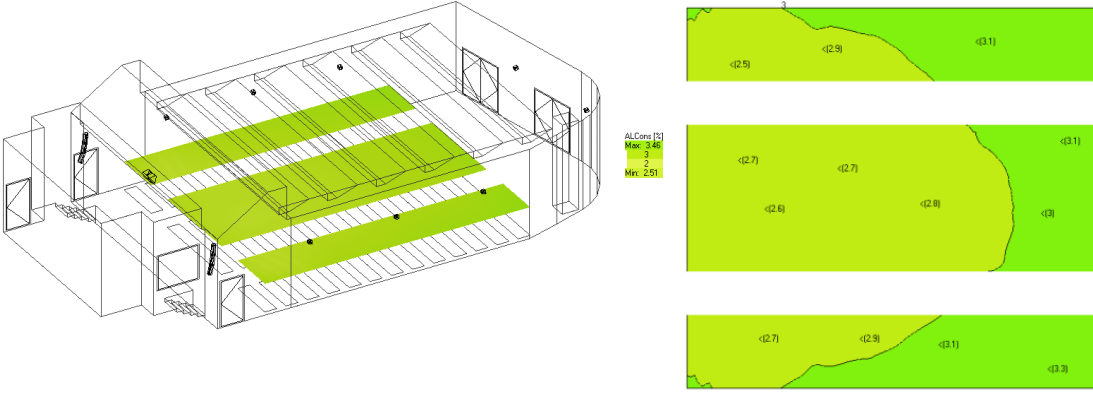
[ Floor Plan Layout ]

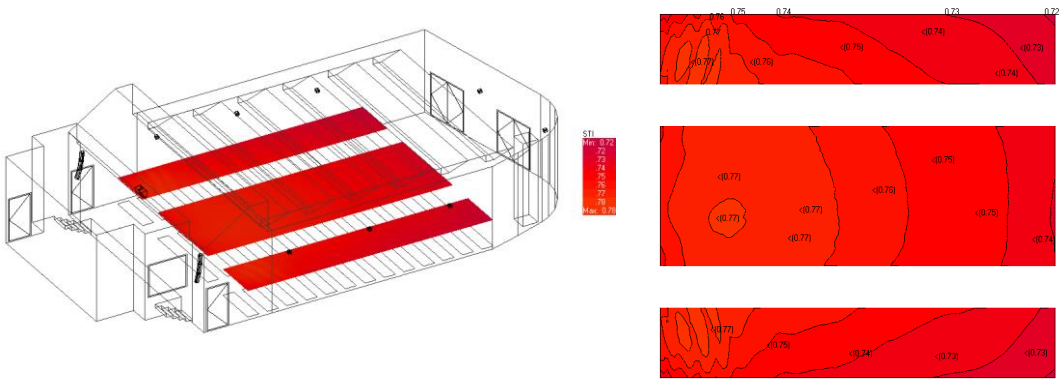


[ Front View ]

## Room : New Seoul Medical Center\_International Conference Hall

### ● EASE Simulation (Alcon-s% / STI)

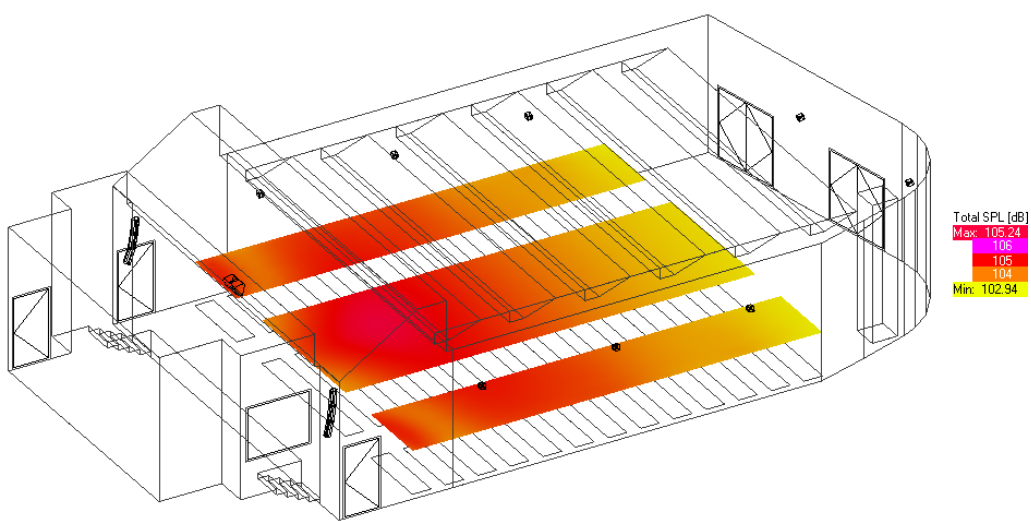
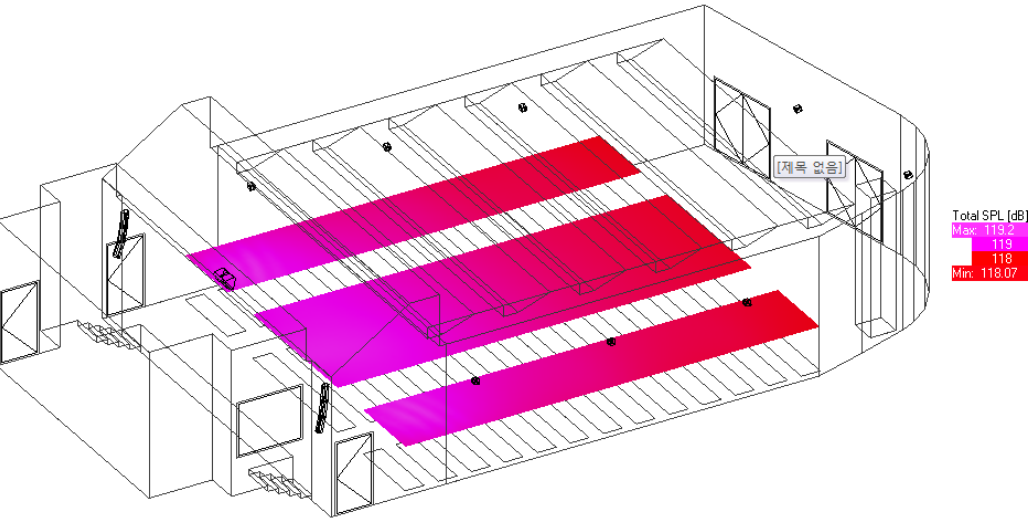
<p>기준 목표값</p>	<p>Alcon-s % : 7% 이하 (Good)</p>
	
<p>결과값</p>	<p><b>2.4% ~ 3.5% (Good)</b></p>

<p>기준 목표값</p>	<p>STI : 0.6 이상 (Good)</p>
	
<p>결과값</p>	<p><b>0.70 ~ 0.78 (Good)</b></p>



## Room : New Seoul Medical Center\_International Conference Hall

### ● EASE Simulation (SPL)

기준값	Total SPL 90dB이상 3dB이내 편차
	 <p style="text-align: center;"><b>Total SPL(1000Hz 기준) : 평균 104dB</b></p>  <p style="text-align: center;"><b>MAX SPL(Broadband) : 평균 118dB</b></p>
결과값	Total SPL : 104dB / MAX SPL : 118dB

## Room : New Seoul Medical Center\_International Conference Hall

### ● Pictures



[ Front View ]



[ Center Speaker\_ Score-5 ]



Room : New Seoul Medical Center\_International Conference Hall

● Pictures



[ Main Speaker\_ 3xLA-Stick4x4 ]



## Room : New Seoul Medical Center\_International Conference Hall

### ● Pictures



[ Surround Speaker\_ Alea-4 ]

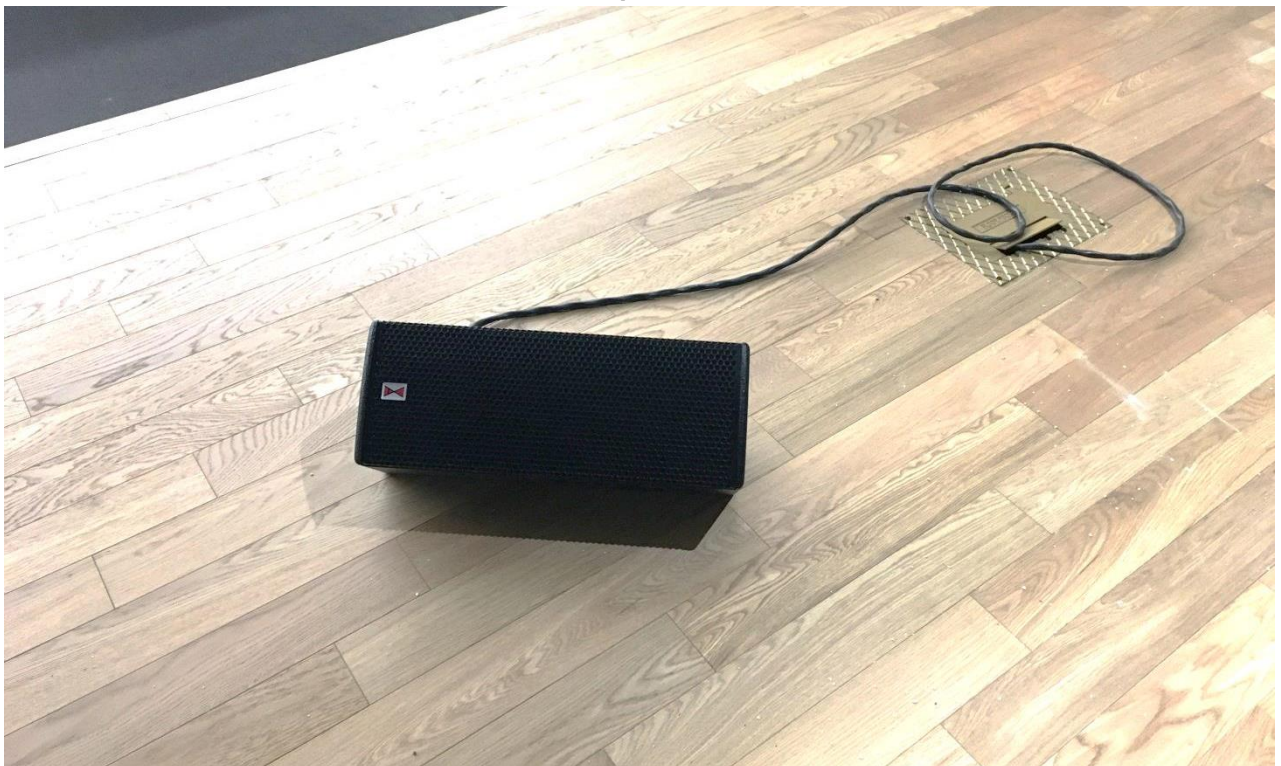


Room : New Seoul Medical Center\_International Conference Hall

● Pictures



[ Surround Speaker\_ Alea-4 ]



[ Stage Monitor Speaker\_ Score-5 ]

## Room : New Seoul Medical Center\_International Conference Hall

### ● Pictures



[ Subwoofer \_ Paveosub-112 ]



[ Amp Rack \_ HDSP-4A,0.4A ]

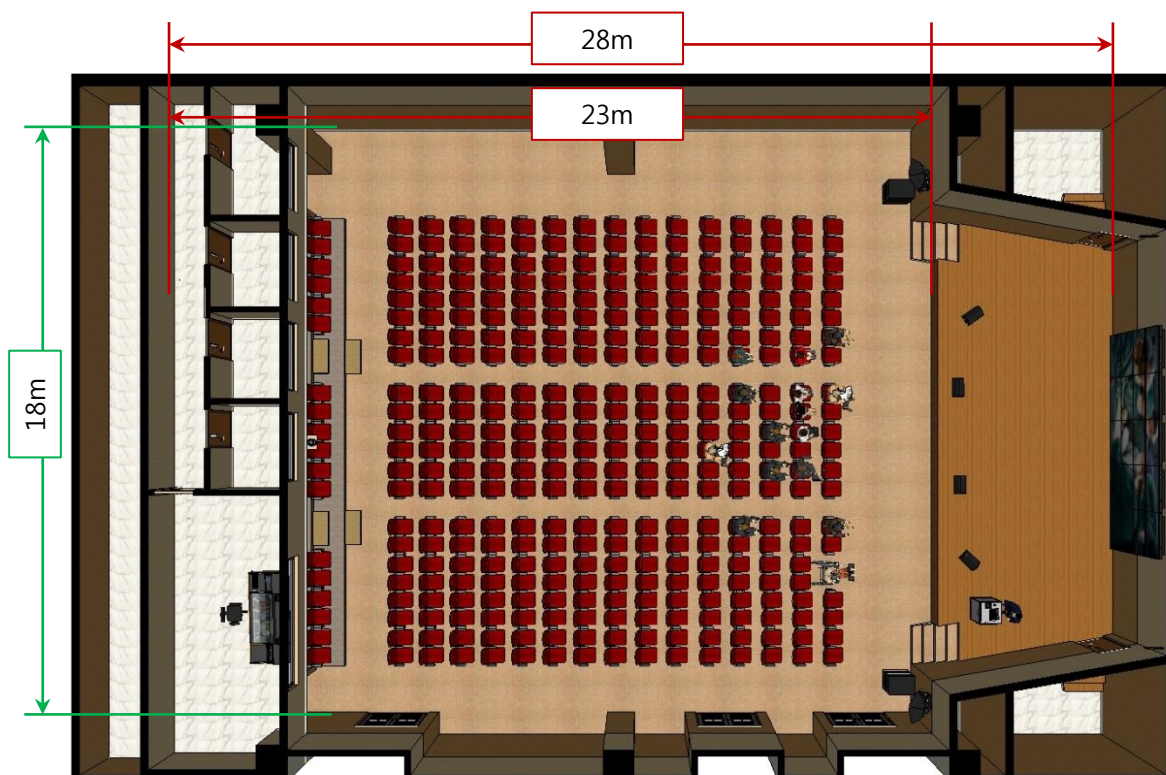


## Project : Ewha Women's University Magok New Seoul Medical Center & College of Medicine

### College of Medicine \_Auditorium

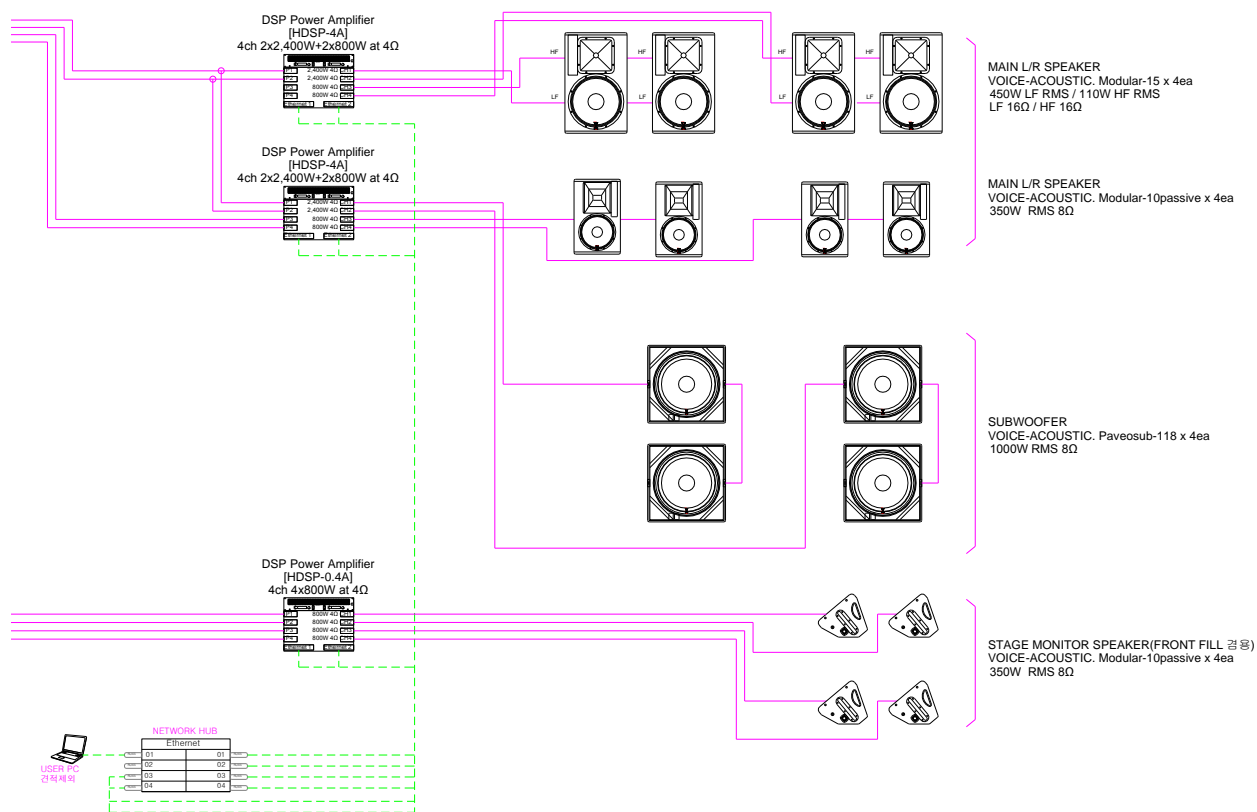
- Auditorium of College of Medicine holds international seminar, live surgery, talk concert, school events and multi-purpose events.
- Auditorium is medium to large sized room with 28m length and 18m width holds 400 seats with main L/R stereo type installed in two points to cover up the whole room. Horizontal array type speakers cover  $40^{\circ}+40^{\circ}$  without interference, total  $80^{\circ}$  delivers accurate audio with minimized wall bounced sound.
- The Main speakers are installed front right and left side as wall flying type with Modular-15 x 2ea with down fill Modular-10 x 2ea.
- As a multi-purpose events hall, powerful low sound is secured with single 18" 1200W(RMS) powerful subwoofer, Paveosub-118 x 2ea are installed at floor stacked.
- Modular-10 x 4ea is used as monitor speaker at the stage for an east process.

#### ● Room Size



## Room : College of Medicine \_Auditorium

### ● Audio System Block Diagram



### ● Products List

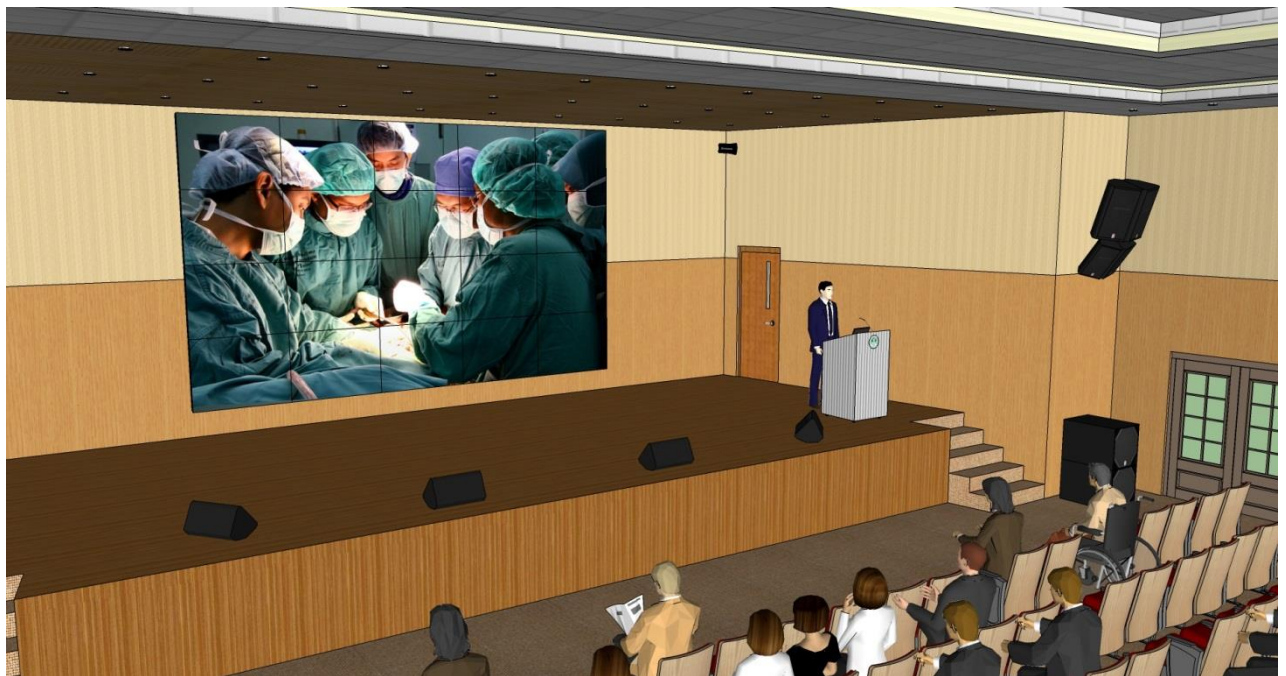
Description	Model	Specification	Q'TY		Remark
Main L/R Speaker	Modular-15	15"+1.4"/ LF 850W(RMS) 8Ω/ HF 110W(RMS) 16Ω	4	EA	
Main L/R Speaker (down fill)	Modular-10	10" 350W(RMS) 8Ω	4	EA	
- Easyfly-Mechanics	Easyfly-Mechanics		4	EA	
- Single stud, Chain fastener			2	SET	
- Safety cable			2	EA	
Subwoofer	Paveosub-118	18" 1,200W(RMS) 12Ω	4	EA	
Stage Monitor Speaker	Modular-10	10" 350W(RMS) 8Ω	4	EA	
DSP Power Amplifier	HDSP-4A	4ch 2x2400W+2x800W at 4Ω	1	EA	
DSP Power Amplifier	HDSP-0.4A	4ch 4x800W at 4Ω	2	EA	

Room : College of Medicine \_Auditorium

- Audio System Rendering View



[ Front View ]



[ Main Speaker, Stage Monitor Speaker ]



Room : College of Medicine \_Auditorium

● Audio System Rendering View



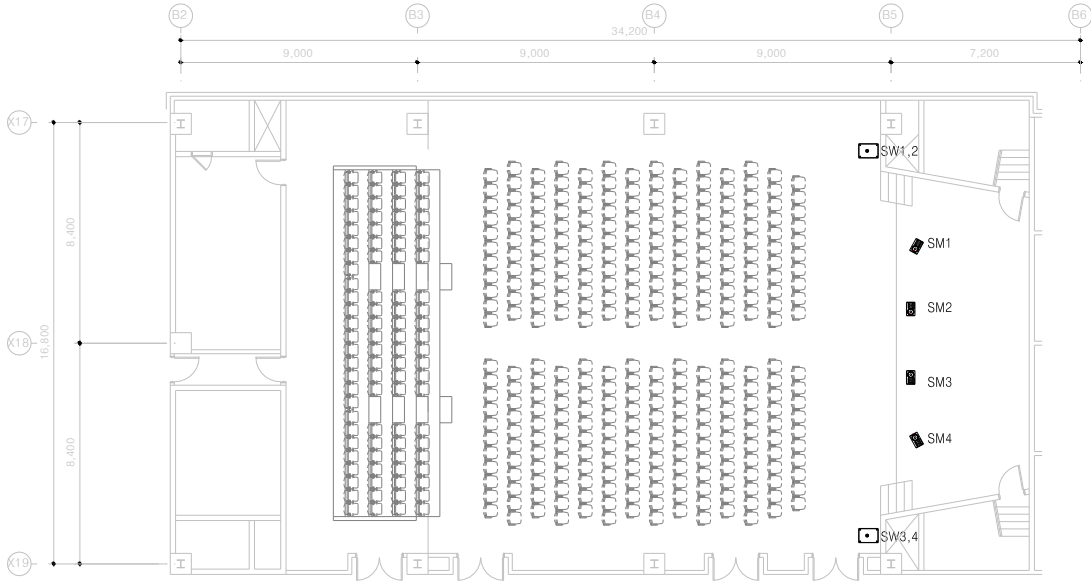
[ Main Speaker, Subwoofer ]



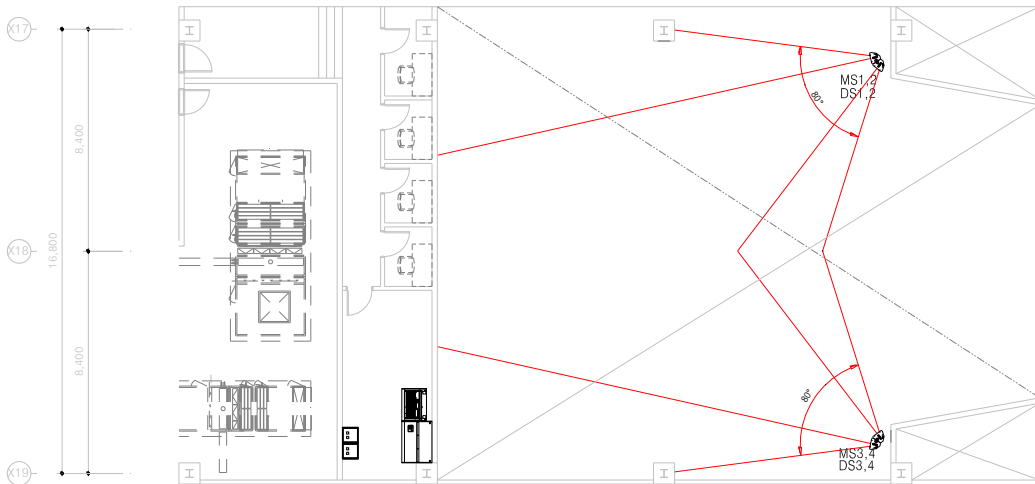
[ Stage Monitor Speaker ]

## Room : College of Medicine \_Auditorium

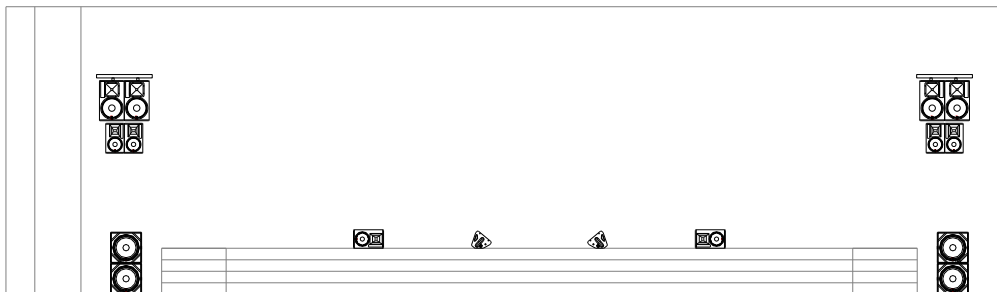
### ● Audio System plan layout



[ 1F Floor Plan Layout ]



[ 2F Floor Plan Layout ]

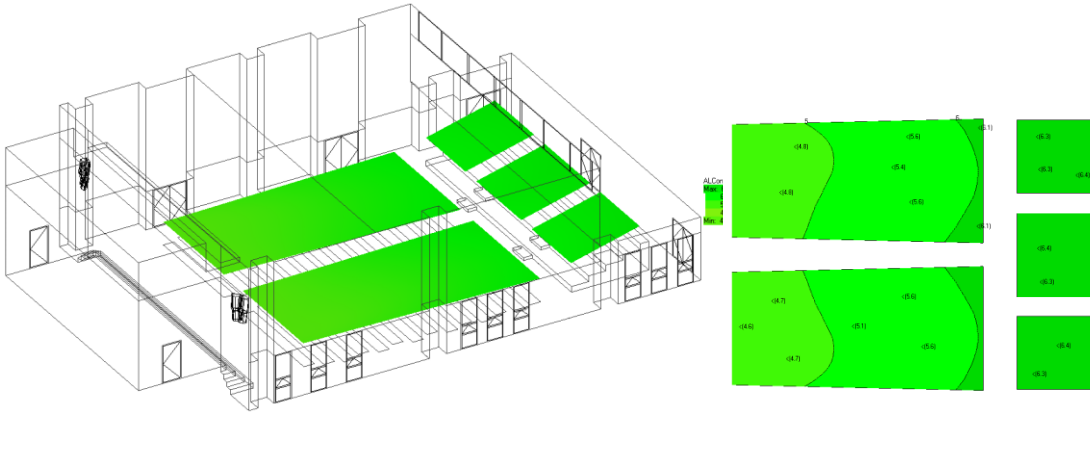


[ Front View ]



## Room : College of Medicine \_Auditorium

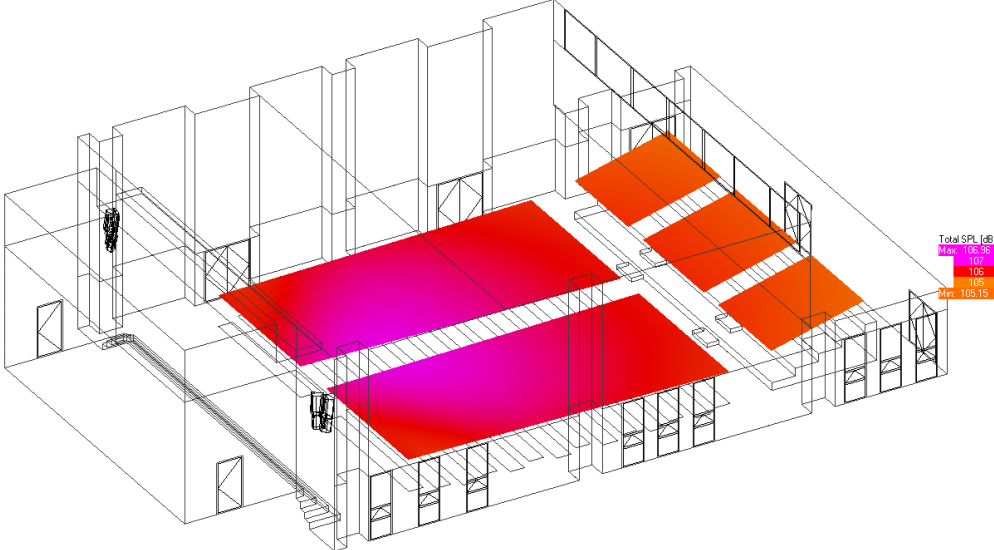
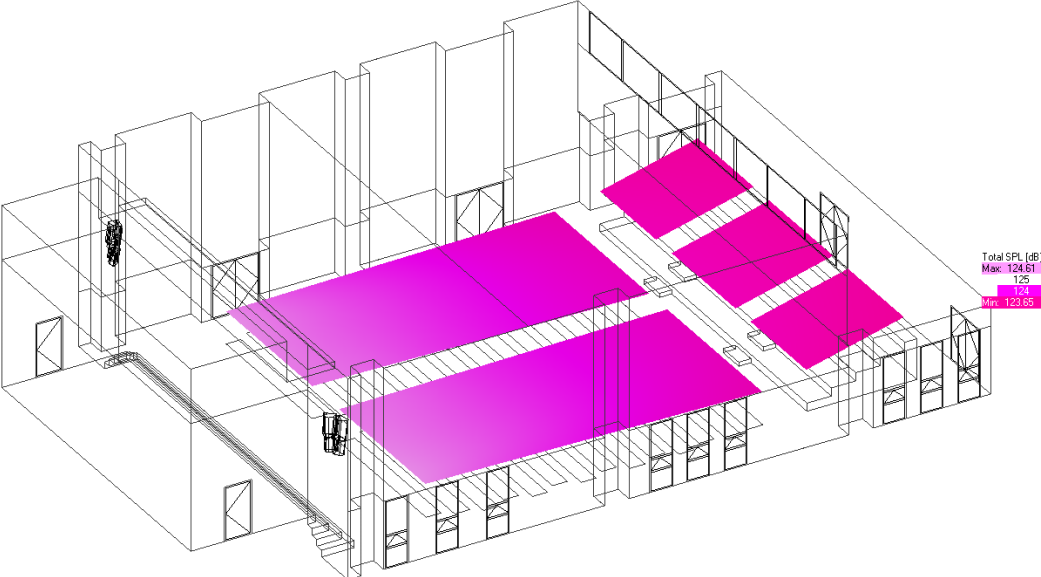
### ● EASE Simulation (Alcon-s% / STI)

<p>기준 목표값</p>	<p>Alcon-s % : 7% 이하 (Good)</p>
	
<p>결과값</p>	<p>4.5% ~ 6.5% (Good)</p>

<p>기준 목표값</p>	<p>STI : 0.6 이상 (Good)</p>
	
<p>결과값</p>	<p>0.60 ~ 0.66 (Good)</p>

Room : College of Medicine \_Auditorium

● EASE Simulation (SPL)

기준값	Total SPL 95dB이상 3dB이내 편차
	 <p>Total SPL(1000Hz 기준) : 평균 106dB</p>  <p>MAX SPL(Broadband) : 평균 124dB</p>
결과값	Total SPL : 106dB / MAX SPL : 124dB



Room : College of Medicine \_Auditorium

● Pictures



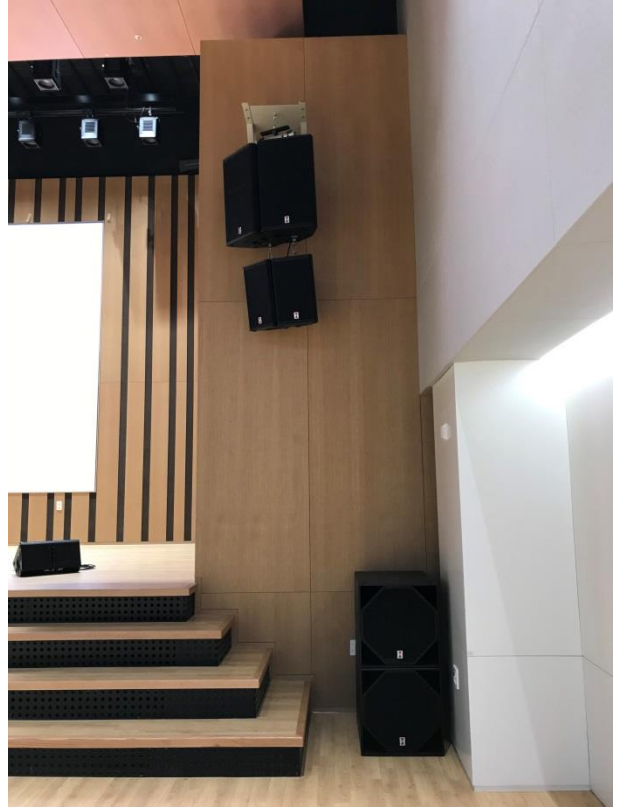
[ Front View ]

Room : College of Medicine \_Auditorium

● Pictures



[ Main L/R Speaker, Subwoofer]



[ Main L/R Speaker, Subwoofer]





Room : College of Medicine \_Auditorium

## ● Pictures



[ Stage Monitor Speaker ]



Room : College of Medicine \_Auditorium

● Pictures

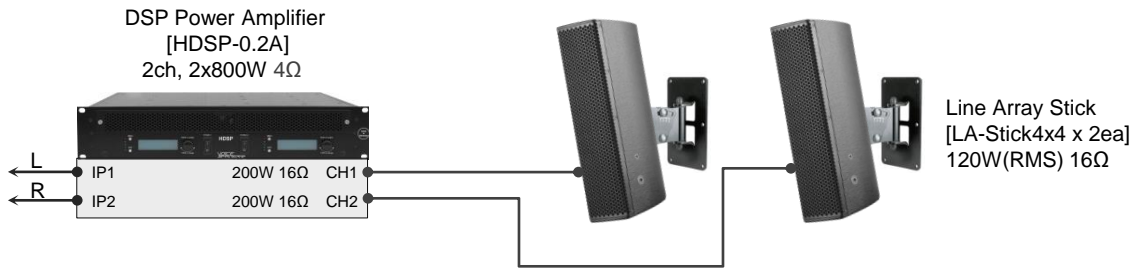


[ Amp Rack ]

## Project : Ewha Women's University Magok New Seoul Medical Center & College of Medicine

### Medical Center\_Conference Hall #1

#### • Audio System Block Diagram



Description	Model	Specification	Q'TY		Remark
Line Array Stick Speaker	LA-Stick4x4	4x4" 120W(RMS) 16Ω	2	EA	
Wall bracket	Wall bracket for LA-Stick	Wall bracket	2	EA	
DSP Power Amplifier	HDSP-0.2A	2ch 2x800W at 4Ω	2	EA	

#### • Pictures

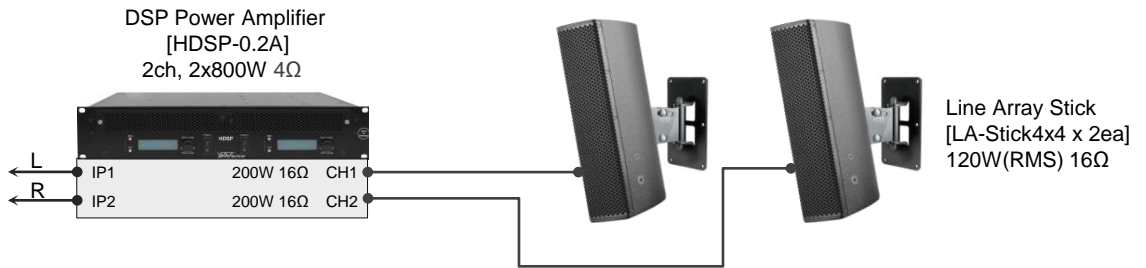




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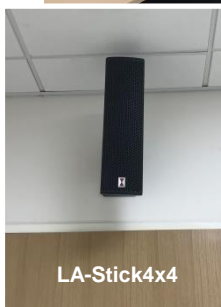
### Medical Center\_Conference Hall #2

#### • Audio System Block Diagram



Description	Model	Specification	Q'TY		Remark
Line Array Stick Speaker	LA-Stick4x4	4x4" 120W(RMS) 16Ω	2	EA	
Wall bracket	Wall bracket for LA-Stick	Wall bracket	2	EA	
DSP Power Amplifier	HDSP-0.2A	2ch 2x800W at 4Ω	2	EA	

#### • Pictures



## Project : Ewha Women's University Magok New Seoul Medical Center & College of Medicine

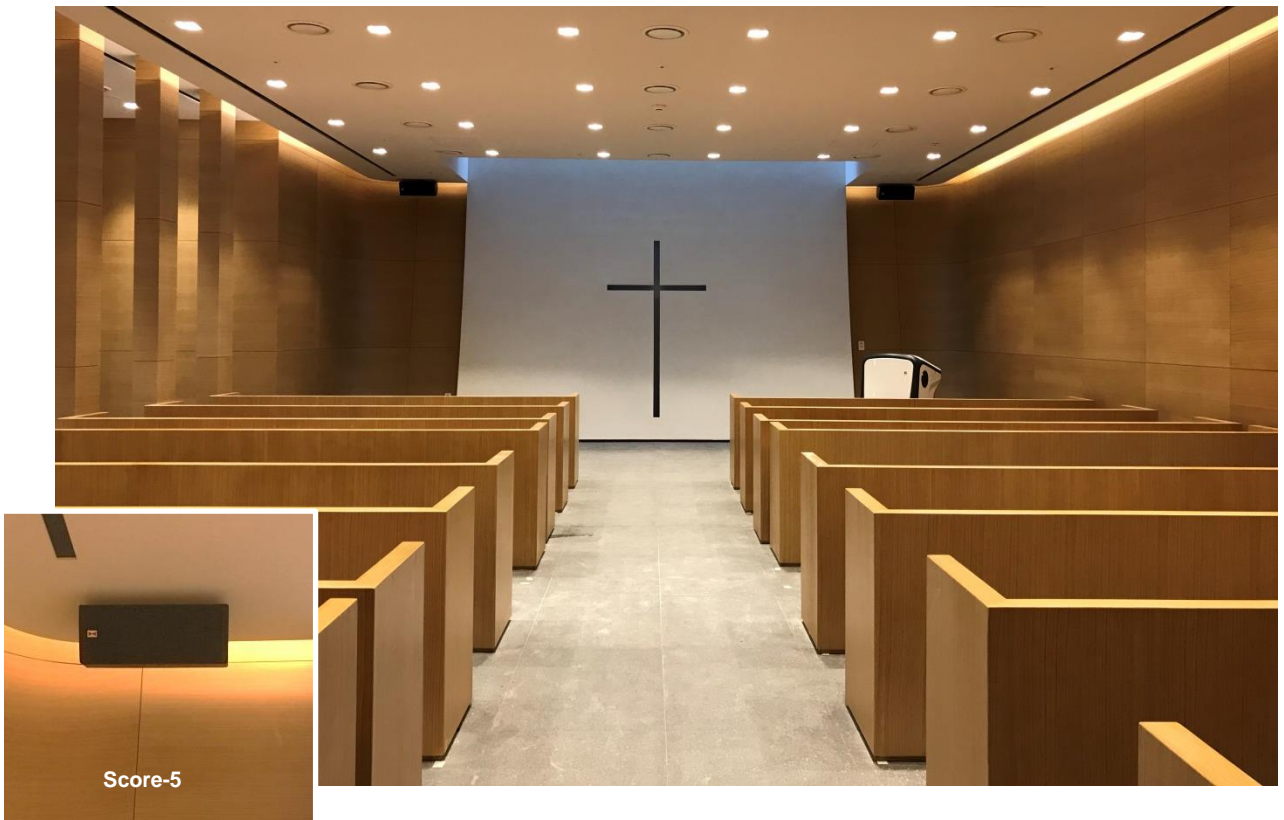
### Medical Center\_Chapel Hall

#### • Audio System Block Diagram



Description	Model	Specification	Q'TY	Remark
Main Speaker	Score-5	2 x 5"1/1 x 1" 200W(RMS) 12Ω	2 EA	
Wall bracket	Wall bracket for LA- Stick	Wall bracket	2 EA	
DSP Power Amplifier	HDSP-0.2A	2ch 2x800W at 4Ω	2 EA	

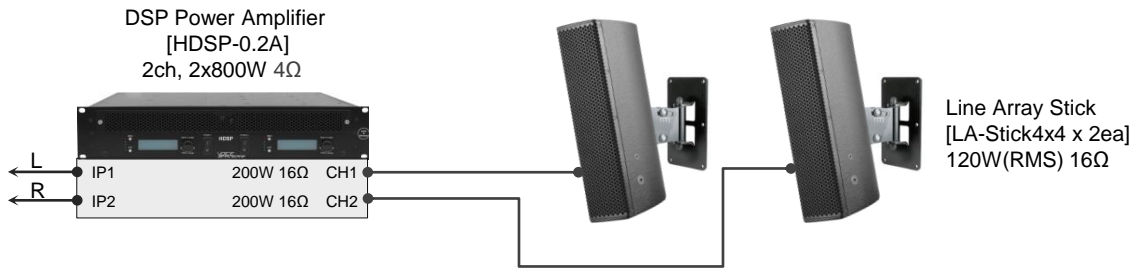
#### • Pictures



**Project : Ewha Women's University  
Magok New Seoul Medical Center & College of Medicine**

**Medical Center\_Chapel Hall**

● **Audio System Block Diagram**



Description	Model	Specification	Q'TY		Remark
Line Array Stick Speaker	LA-Stick4x4	4x4" 120W(RMS) 16Ω	2	EA	
Wall bracket	Wall bracket for LA-Stick	Wall bracket	2	EA	
DSP Power Amplifier	HDSP-0.2A	2ch 2x800W at 4Ω	2	EA	

● **Pictures**

