Professional

SOVIS

LS408aW
Compact Line Array Sound Reinforcement System
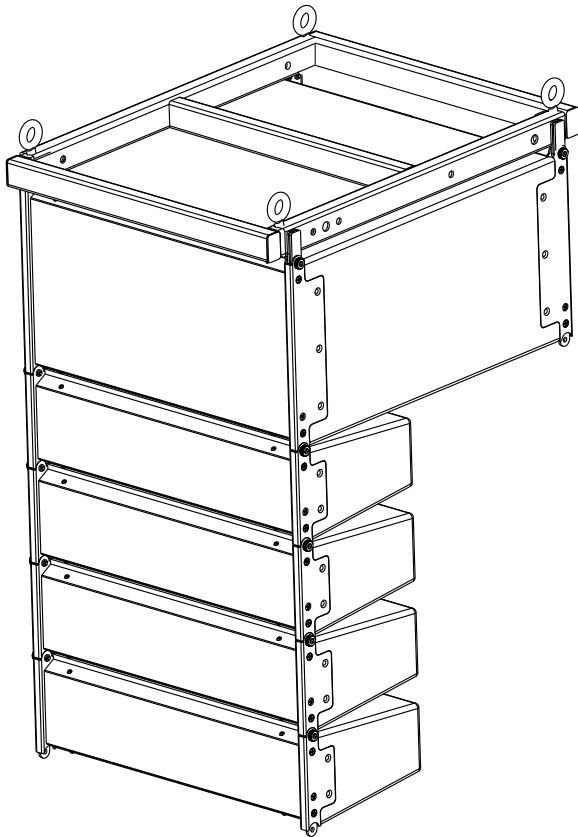
User Manual

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SOVIS

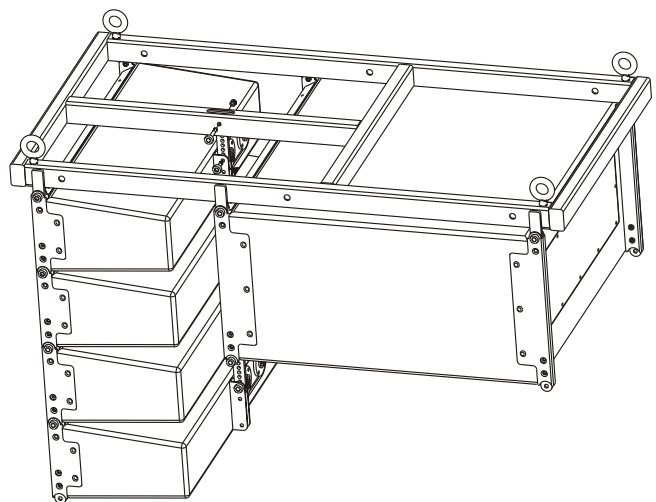# LS408aW

COMPACT LINE ARRAY SOUND REINFORCEMENT SYSTEM

● Compact design suitable for various application

● Up to 40kHz frequency range with the use of ribbon tweeters.

● Low distortion due to utilization of unique thin foam surround & specially coated paper cone

● Multi-speaker array configurable for flying in different venues, with splay angle adjustable by 1° increment

● 600W DSP active amplifier

● RS-232/USB/RS-485 ports available for system control

DESCRIPTION

LS408aW is specially designed for luxury cinema, large-sized meeting room, multi-functional hall, church and auditorium applications. The system consists of 1 active subwoofer and 4 full range speakers which can form multi-cluster configurations.

LS408aW is designed by applying line array concept. It features compact dimensions and easy to handle design. The built-in 600W amplifier and DSP is available for use at any moment when connected to sound resource. System control over each cluster frequency response, crossover point & slope, delay, gain and limit protection can be adjusted by connecting the speaker system to PC via the USB or RS232 port. ribbon tweeters offers a wide-range frequency response to up to 40kHz. Utilization of the unique thin foam surround and specially coated cone paper has reduced the distortion rate effectively. Input signals are amplified by the built-in pre-amplifier, then processed and distributed by DSP, finally output via power amplifier to the subwoofer and the full-range speakers, which forms an integrated system.
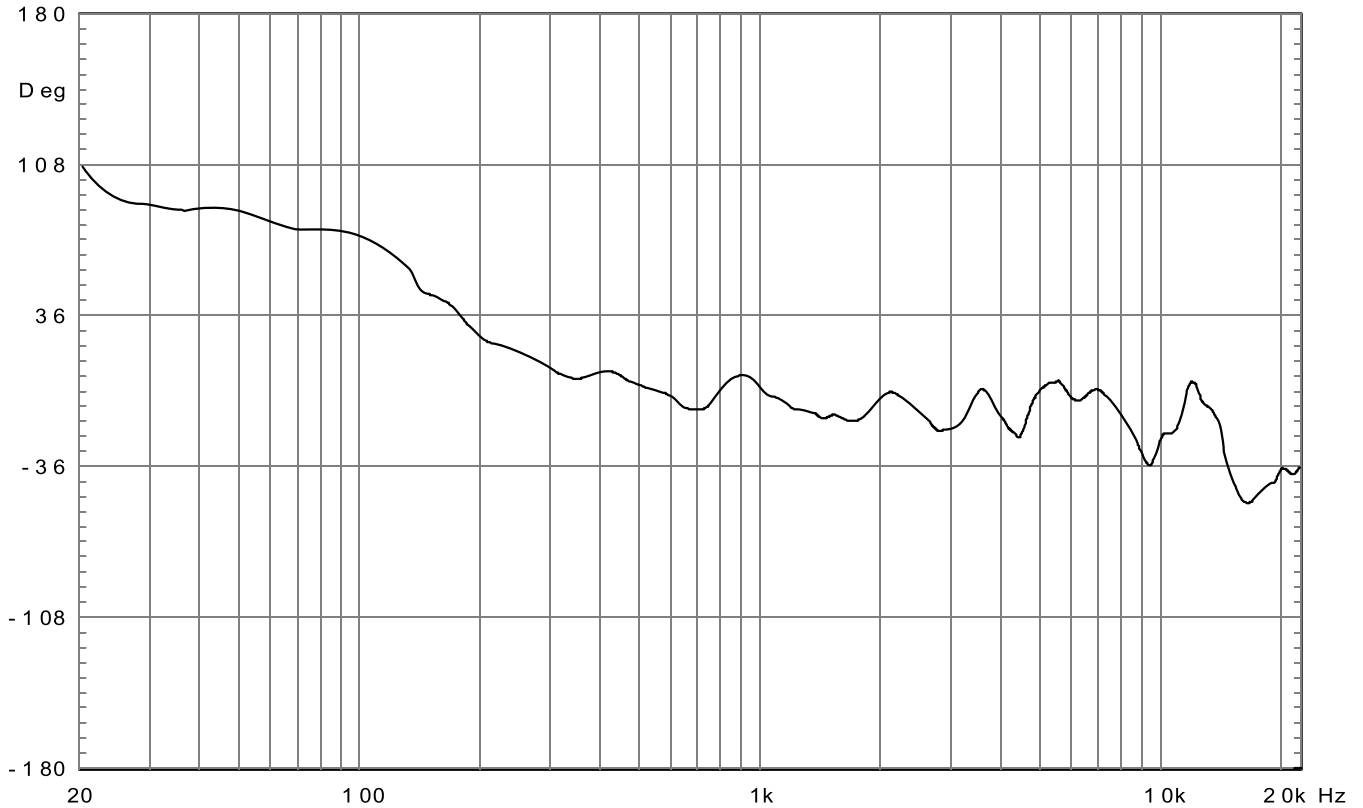
The flying hardware is designed to fit different application situation flexibly with the splay angel adjustable by 1° increment vertically.
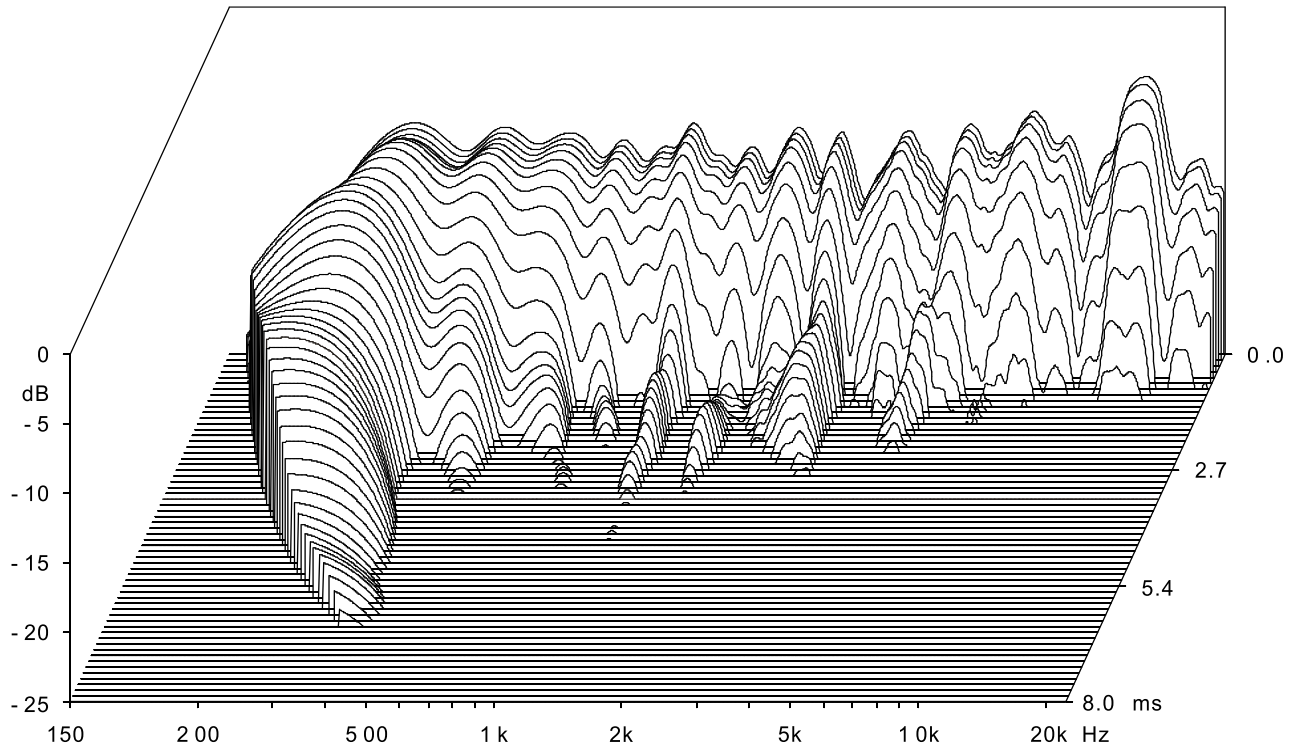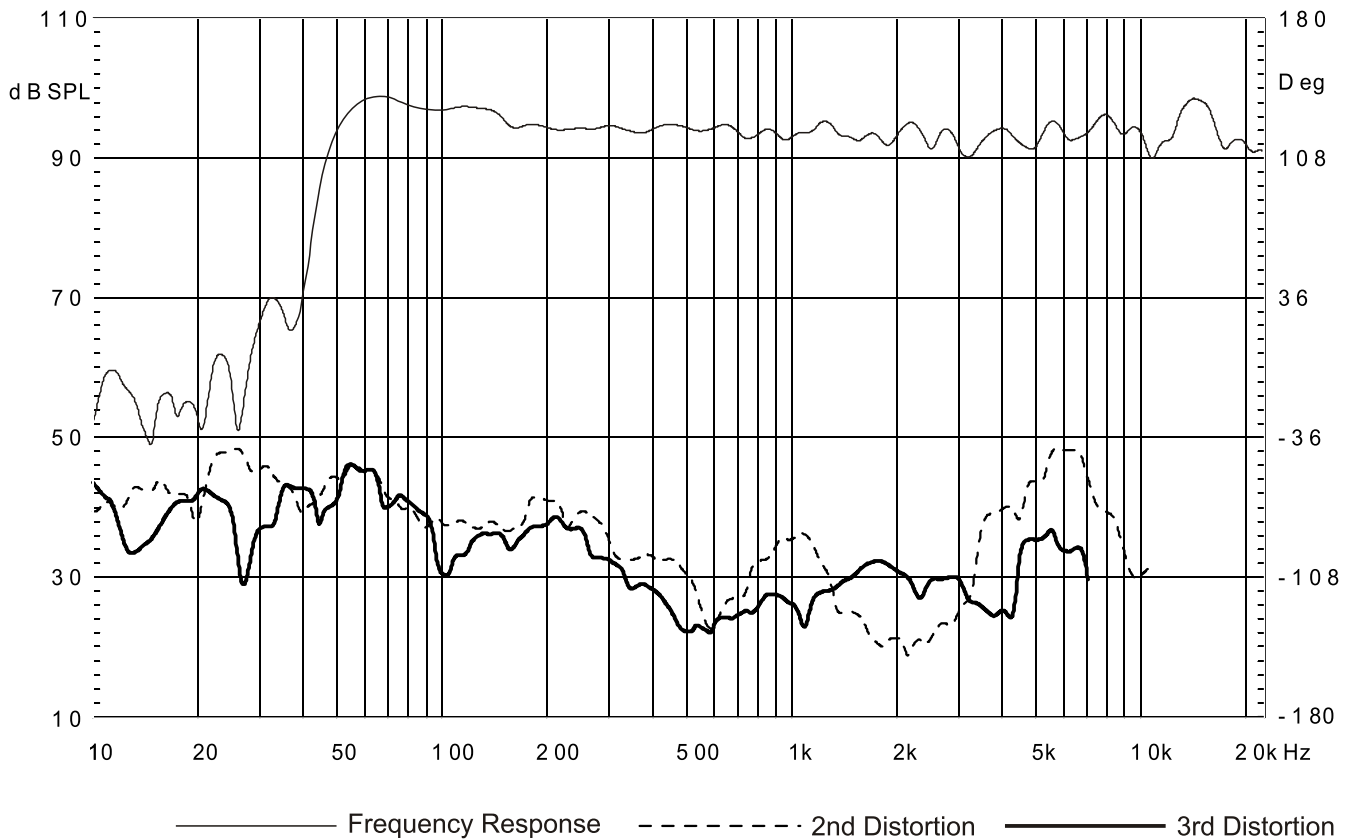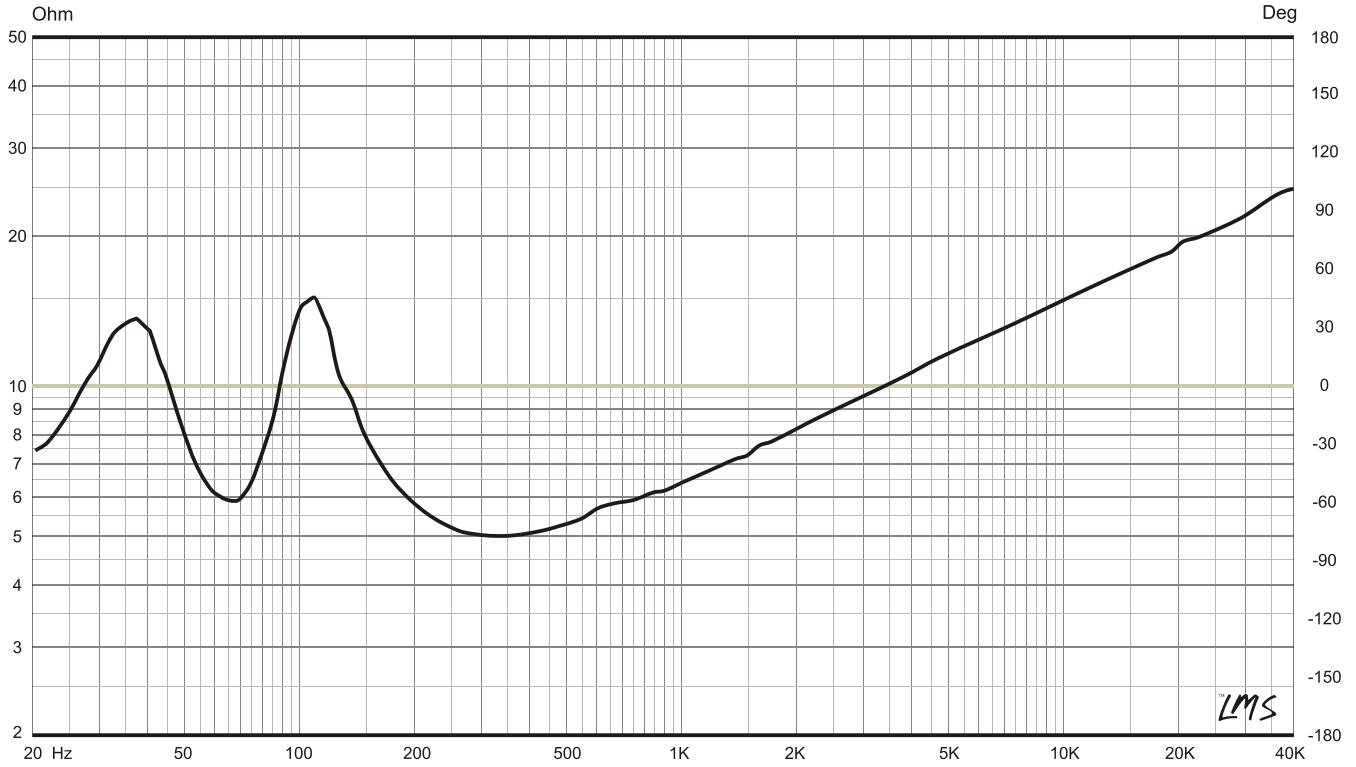
FREQUENCY RESPONSE
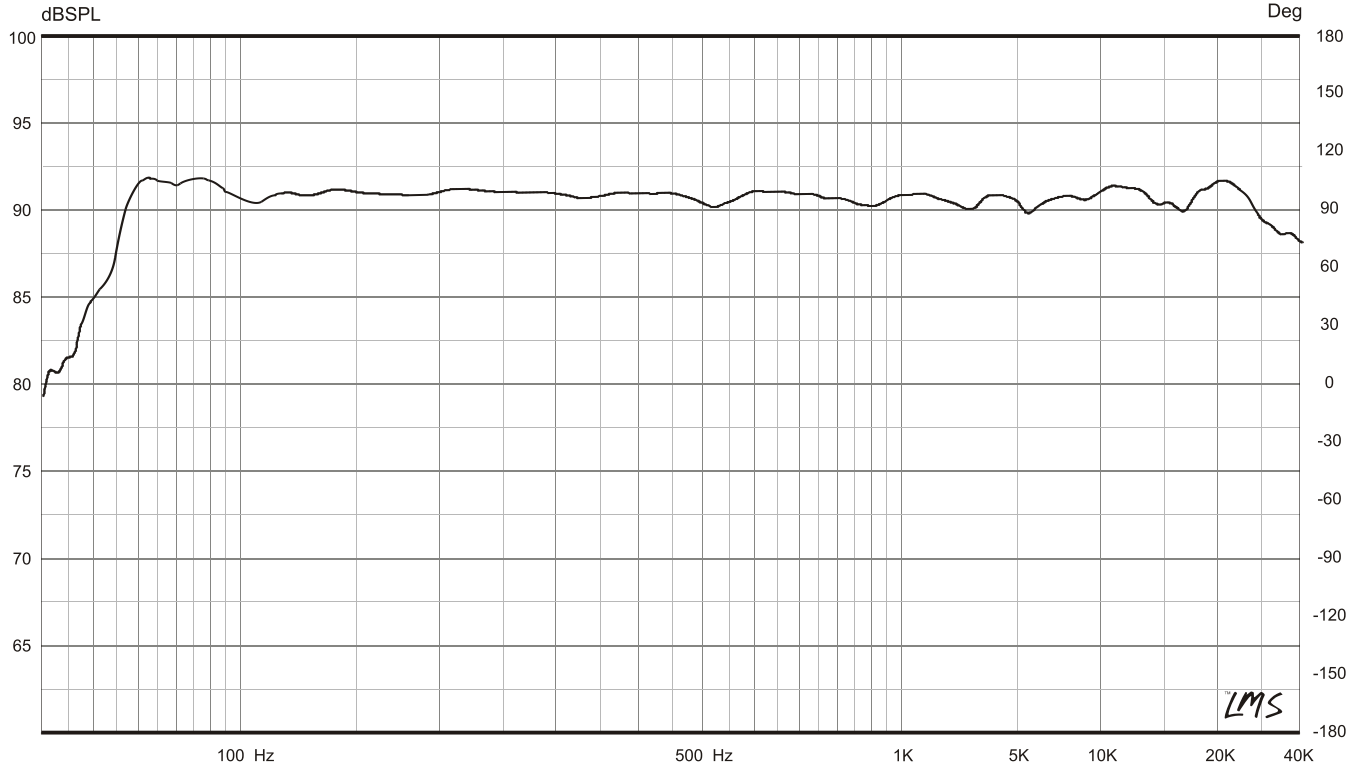
PHASE RESPONSE

WATERFALL

THD

———— Frequency Response   – – – – – 2nd Distortion   ———— 3rd Distortion
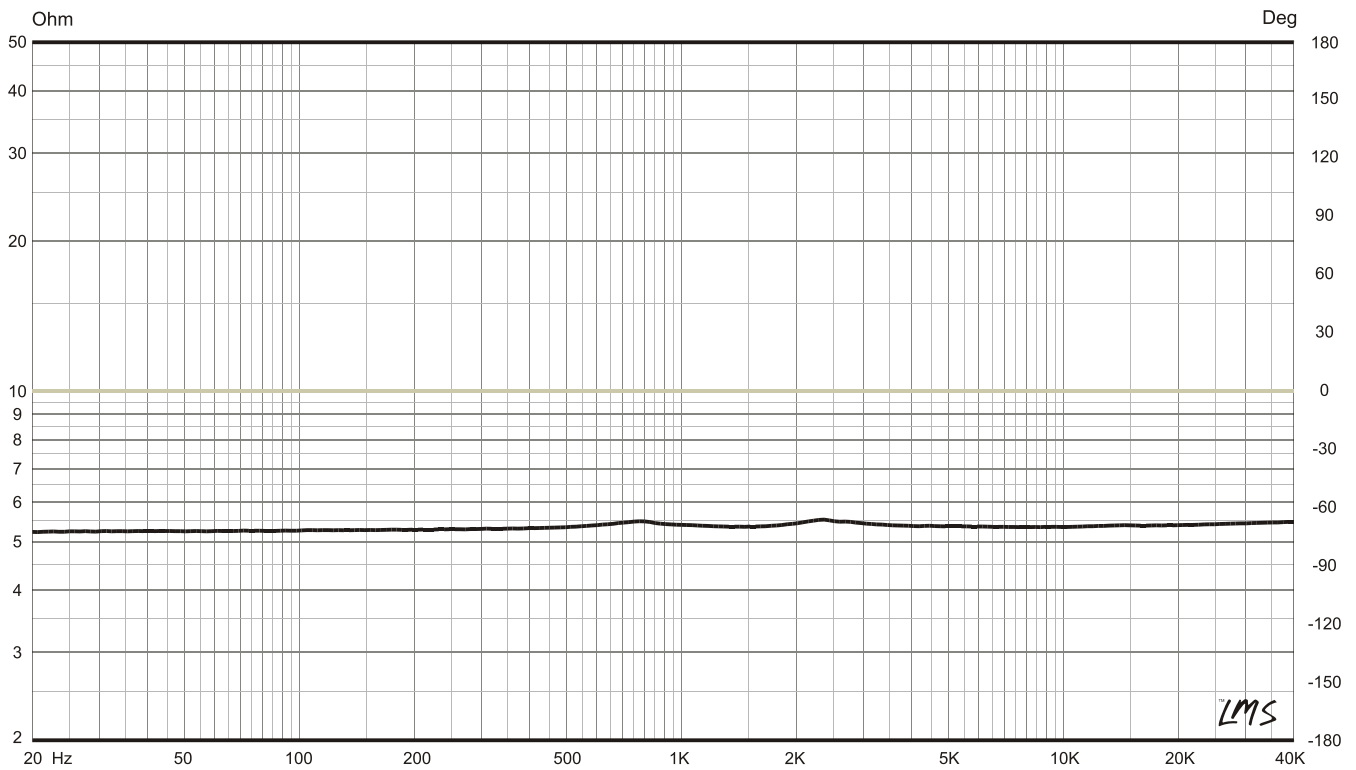
IMPEDANCE CURVE

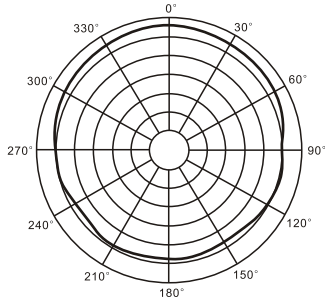### IMPEDANCE CURVE OF LS8

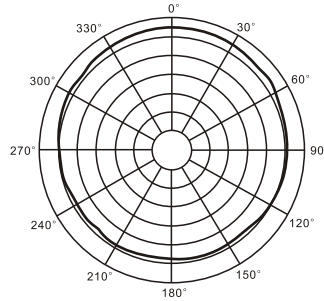### IMPEDANCE CURVE OF THE RIBBON TWEETER

HORIZONTAL DIRECTIVITY

The data of LS408aW horizontal directivity were collected by testing the speaker system in a anechoic chamber. The distance between the testing microphone and the speaker system is 4 meters.

100Hz	160Hz	250Hz
400Hz	630Hz	1kHz
1.6kHz	2.5kHz	4.0kHz
6.3kHz	10kHz	16kHz
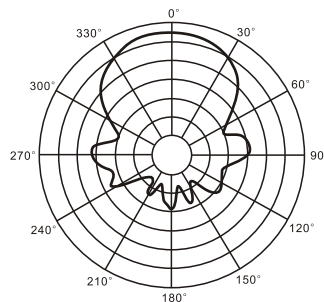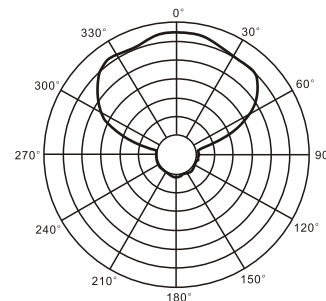
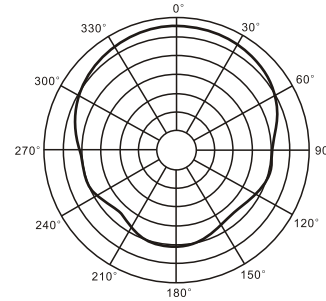The scale is stepped by 6dB increment.

VERTICAL DIRECTIVITY

The data of LS408aW vertical directivity were collected by testing the speaker system in a anechoic chamber. The distance between the testing microphone and the speaker system is 4 meters.
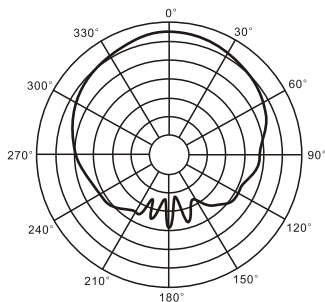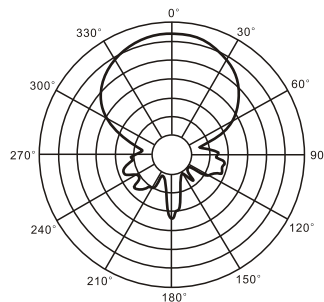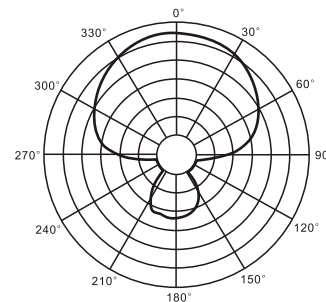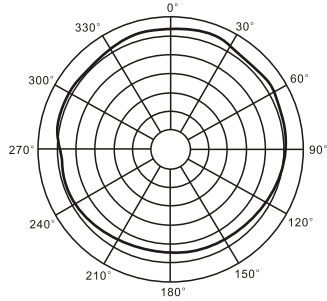

100Hz
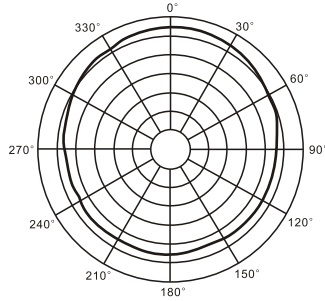
160Hz
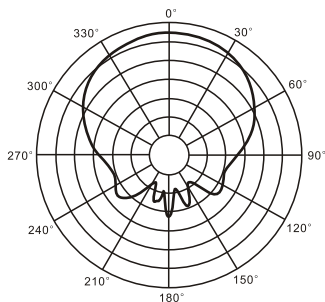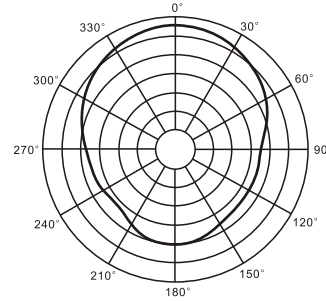

250Hz
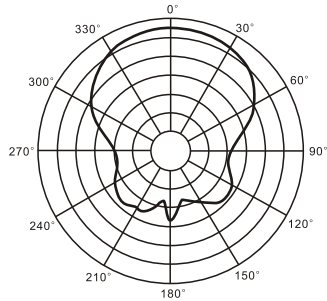
400Hz
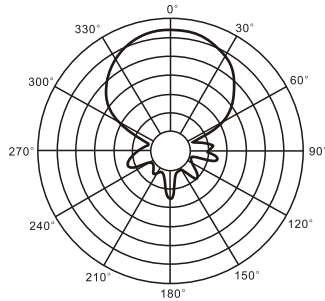
630Hz
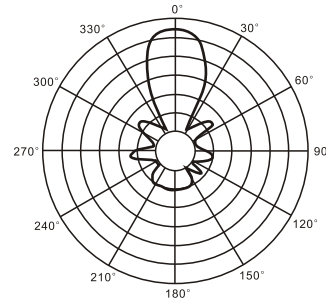
1kHz
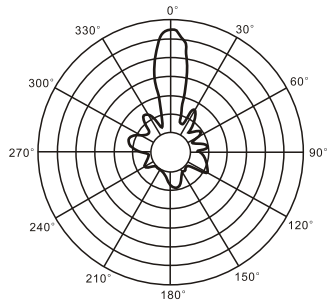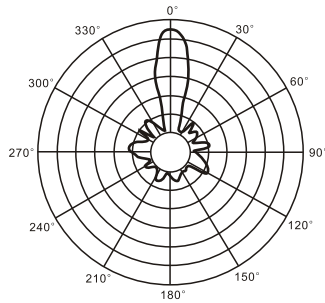
1.6kHz

2.5kHz
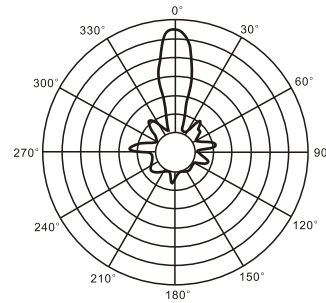
4.0kHz

6.3kHz
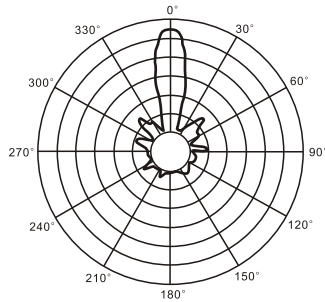
10kHz
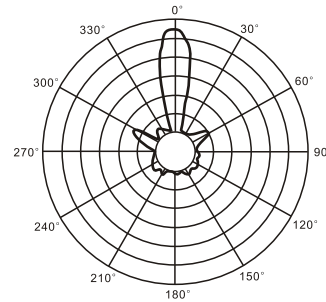
16kHz

The scale is stepped by 6dB increment.

INSTALLATION

Ring

Flying Frame

LS8

M5 Thumb
Screw

Front Link

M5 Small
Head Screw

LS4

LS408aW Link

LS4 Link

10
9
8
7
6
5
4
3
2
0

LS8

LS4

LS4 Link   LS408aW Link

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INSTALLATION

INSTALLATION METHOD 1
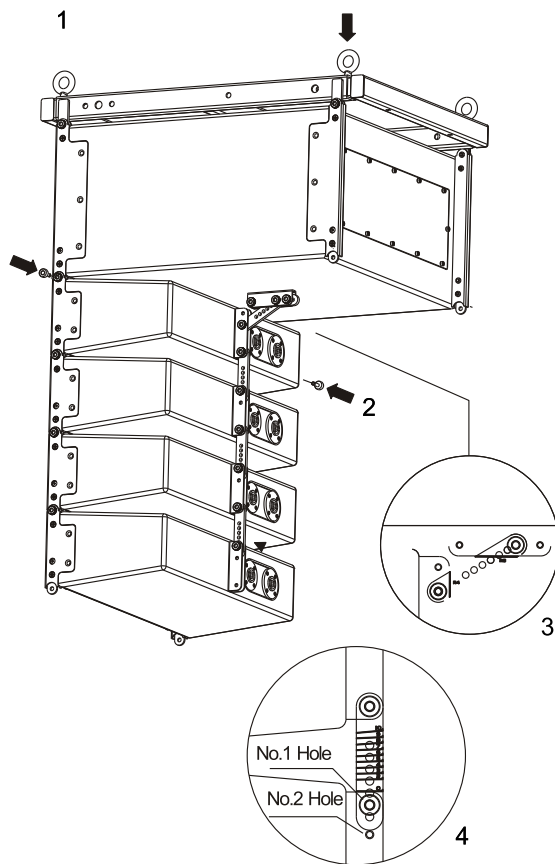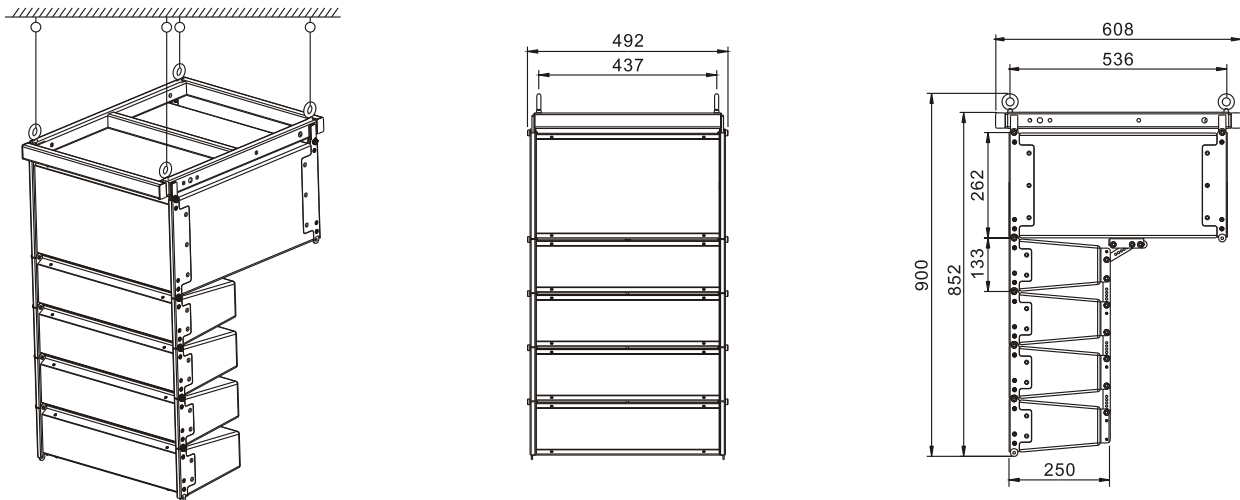
ONE CLUSTER FLOWN VERTICALLY

(1) Open the package and take out LS4、LS8 speakers and the accessories.

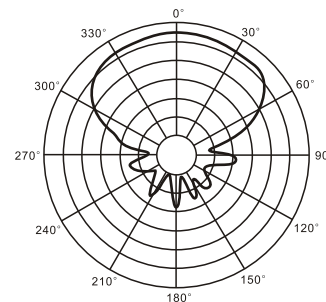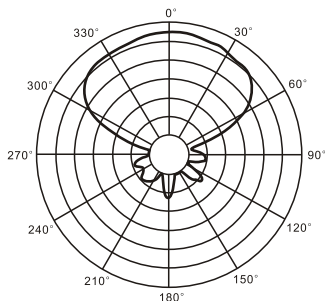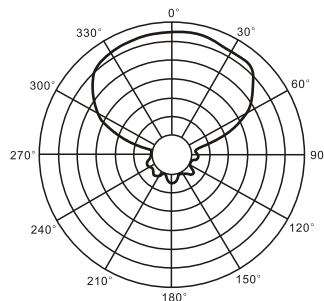(2) Mount the four M8 rings to the flying frame (see Figure 1).

(3) Remove the two M5 thumb screws at the bottom of LS8, and take out the LS408aW Link.

(4) Remove the two M5 thumb screws at the top of the front side of LS4.

(5) Insert the two LS8 Front Links into the U grooves along the left & right front edges of LS4, make sure the two screw holes on both sides are aligned, and tighten the screws through the holes.

(6) Insert one end of the LS408aW Link into the U groove of LS4 and the other end into the U groove on the bottom of LS8, make sure the two screw holes at both ends of the link are aligned with the corresponding holes in the U grooves, mount the two M5 thumb screws, and tighten (see Figure3). Alignment of the white scale lines on the LS408aW link with the edges of the two U grooves indicates successful mounting.

SPLAY ANGEL ADJUSTMENT

Attached LS4 speaker together with its back link (LS4 Link), make sure the right scale line marked on the LS4 Link is aligned with the edge of the U groove of Ls4 speaker (The numbers marked besides each scale line indicate different splay angles). Then insert the M5 thumb screw through the aligned holes of the Ls4 Link and the U groove of the speaker (Alignment with Number 1 hole in the groove is required when 0°/2°/4°/6°/8°/10° of splay angle is wanted, and alignment with Number 2 hole is required when 3°/5°/7°/9° of splay angel is wanted).

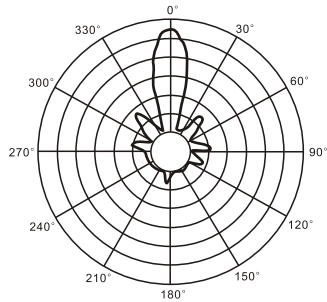For example, if the splay angle between two LS4 speakers is designed to be 5°, the scale line marked with the number of 5 on the LS4 Link must be aligned to the bottom edge of the groove on the top speaker, then a hole in the LS4 Link will be found to be aligned with Number 2 hole in the groove at the top speaker. Insert a M5 thumb screw through the two aligned holes and tighten.

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INSTALLATION

INSTALLATION METHOD 2

**Multi Clusters Flown Vertically
(maximum 4 Clusters)**
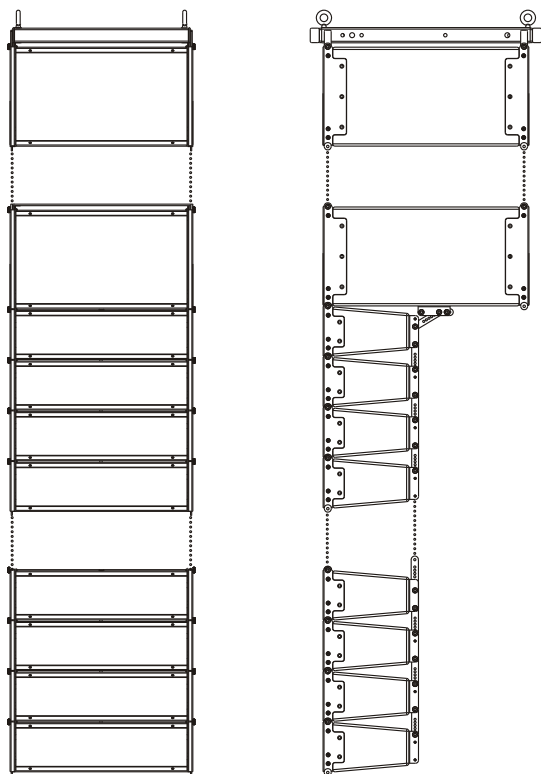
INSTALLATION METHOD 3

Cluster stacked with LS8 at the bottom.
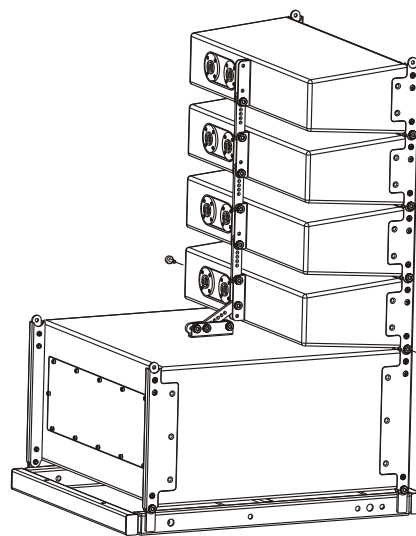
INSTALLATION

INSTALLATION METHOD 4 (THE LONG FLYING FRAME IS OPTIONAL)

No.1 Hole

No.2 Hole
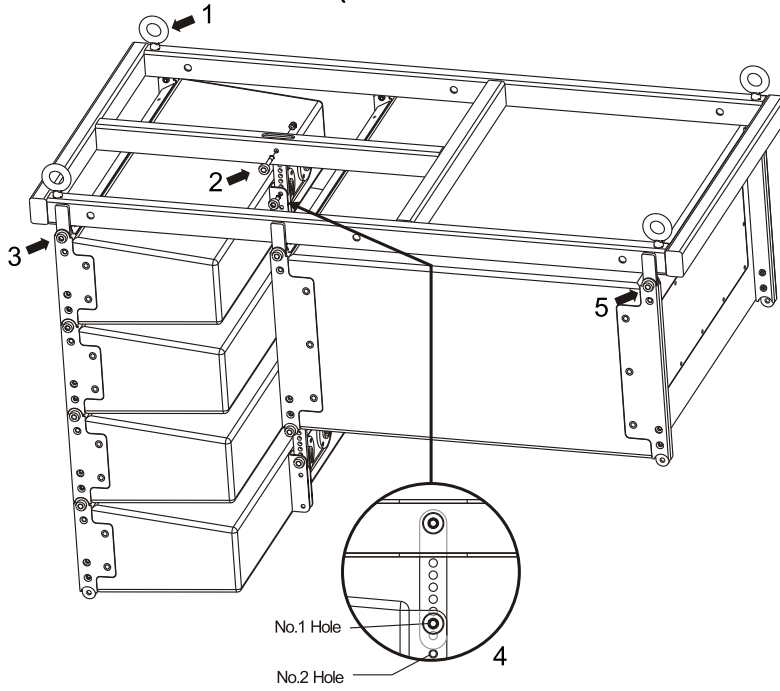
INSTALLATION METHOD 5

Multi clusters flown from front to back (maximum 4 clusters)

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CONNECTION

Power Input

Signal Input

LS4 Speaker Output

LS4 Input   LS4 Output

LS4 Input   LS4 Output

LS4 Input   LS4 Output

LS4 Input
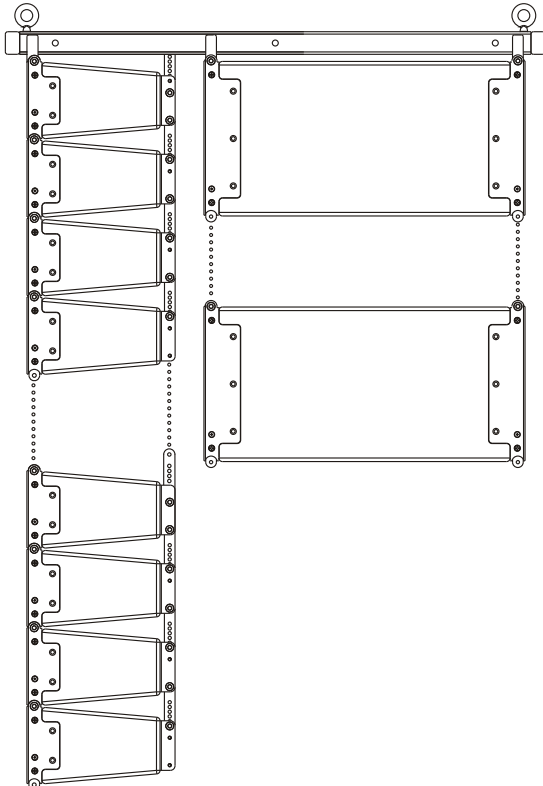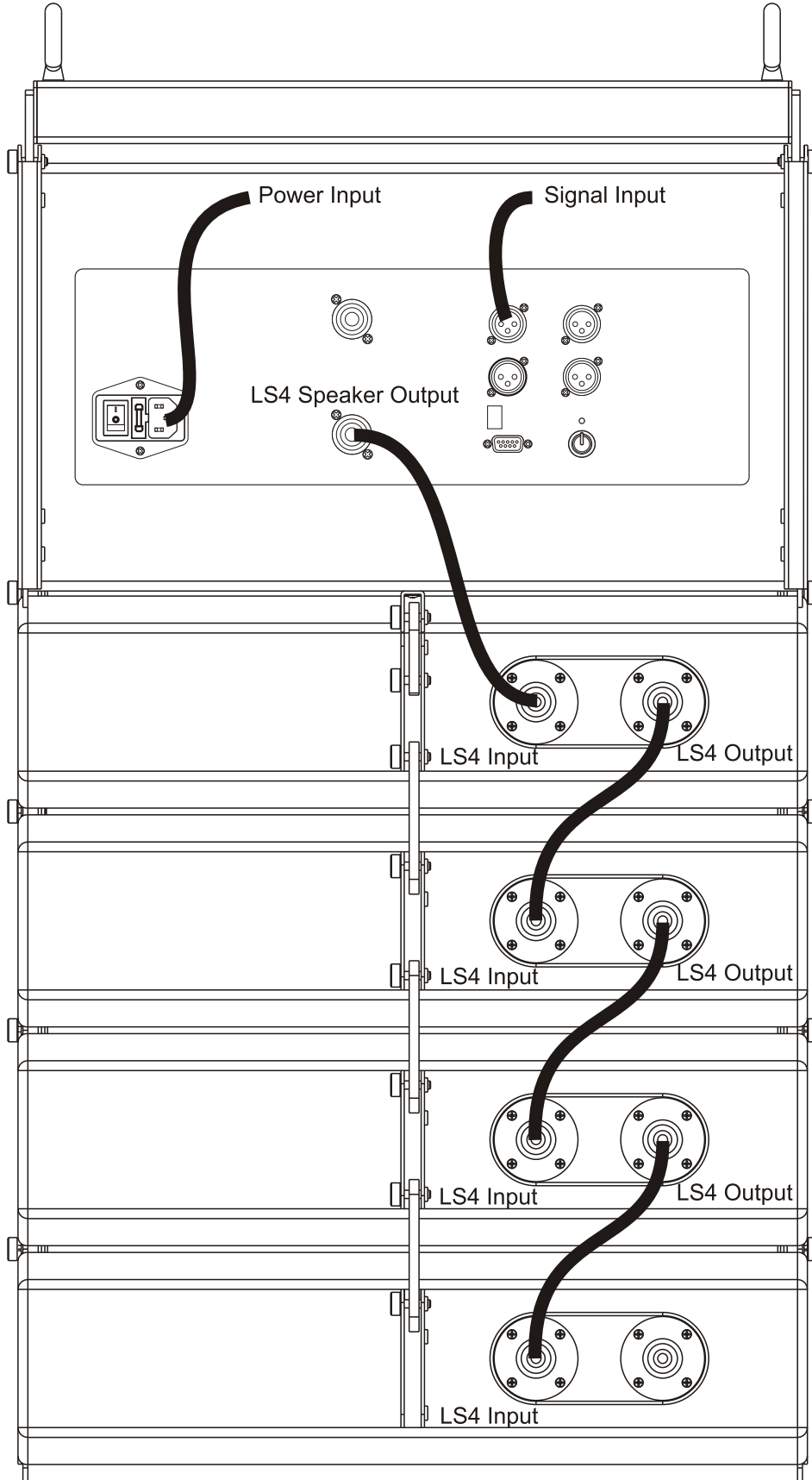
AMPLIFIER MODULE WITH DSP

The amplifier module embedded in the system. RS-485 and USB port are added it for computer connection, Built-in stepless cooling fan(Speed will be changed according to the temperature automatically to make sure system work stably), overload protection, short circuit protection (avoid damage of amplifier when abnormal loading occurs) and temperature protection(when the temperature is over the normal range, DSP will atte- nuate the output, if temperature is normal ,then amplifier′s output will return to normal status).
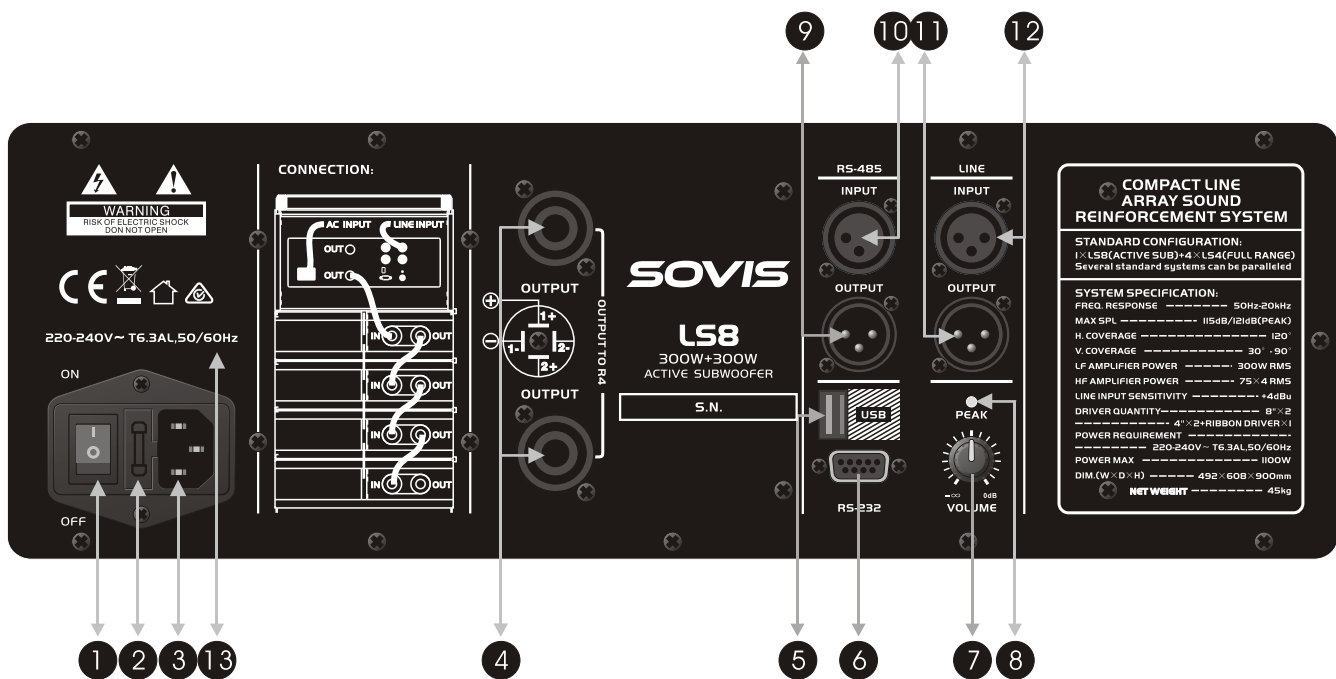
1、Power Supply Switch
2、Fuse
3、Power Supply Input

4、Signal Output (NL4 socket)
5、USB Port
6、RS-232 Port

7、Volume
8、Signal Peak Indicator
9、RS-485 Output

10、RS-485 Input
11、Line Output
12、Line Input

13、Different AC input versions are available for this product,
     please pay attention to the AC mark on the product.

SOFTWARE APPLICATION GUIDE

How to get the software

The software is stored on the CD with equipment packaging. The latest version also may be downloaded from the company website.

Software installation

System requirement: Microsoft Windows 98/XP or above version. Display resolution should be 1024*768 or above. The computer must have a RS-232 port or USB port. Run the "Active Speaker Controller(V1.34) msi" file, according to the computer's setup guide to install the control software.

Equipment connection

Connect the equipment to computer by RS-232, or the USB port (after connection, the computer will indicate that new device is found, then you may install the USB driver located in "driver" directory of the CD.

Software operation guide

1. Run the software(Active Speaker Controller) from program menu in the windows start button, the following interface will be shown, See Figure 1:

Figure（1）

This interface includes all function modules about the equipment, menu description as following:

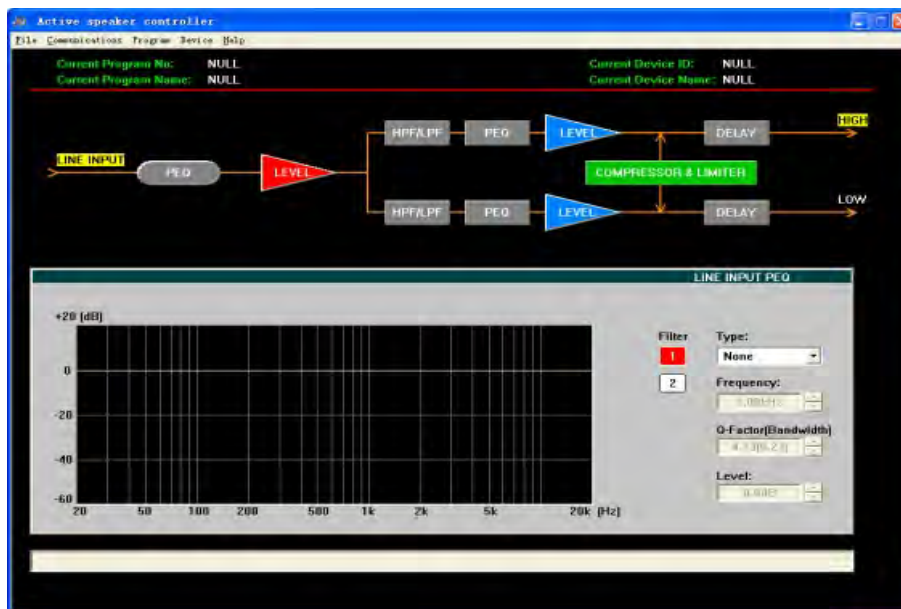1.1> File: **Open** the configuration files, or **Save** current configuration as a file into computer;

1.2> Communications: Connect ("**Enable Communications**") or Disconnect ("**Disable Communications**") the equipment, Operation details refer to following description.

SOFTWARE APPLICATION GUIDE

1.3> Program: Obtain the information of currently used configuration file (Disconnection status),or the information of current program in the equipment(Connection status).

On disconnection status, only "**Display Current Program No**", "**Display Current Program Name**" , "**Edit Current Program Name**" and "**Load Factory Default Configuration**" may be valid. All changes do not affect the equipment internal program settings.

On connection status, all items are valid under the "Program" menu. If selecting the" **Edit Current Program Name**" command, the current program name auto saved in the equipment;

If selecting the "**Load Factory Default Configuration** " command, the current program is overwrite by the default setting automatically (**! Attention Please: this operation will overwrite the current program configuration, before executing this operation, please make sure you really ready to load factory default settings**). Details of other function items (such as"**List Program & Recall**" and "**Save as current program in device**")under the "Program" menu, please refer to following description.

1.4> Device: Modify the device information, and saved in the equipment automatically, only valid on connection status;

1.5> Help: the control software version information.

2.Connecting the device.

2.1> Three hardware connection solution(USB,RS-232,RS-485) are available for your connecting;

2.2> After connected the device with computer port , Click the "Communications", select "E nable Communications" command to start the connecting. See Figure 2:
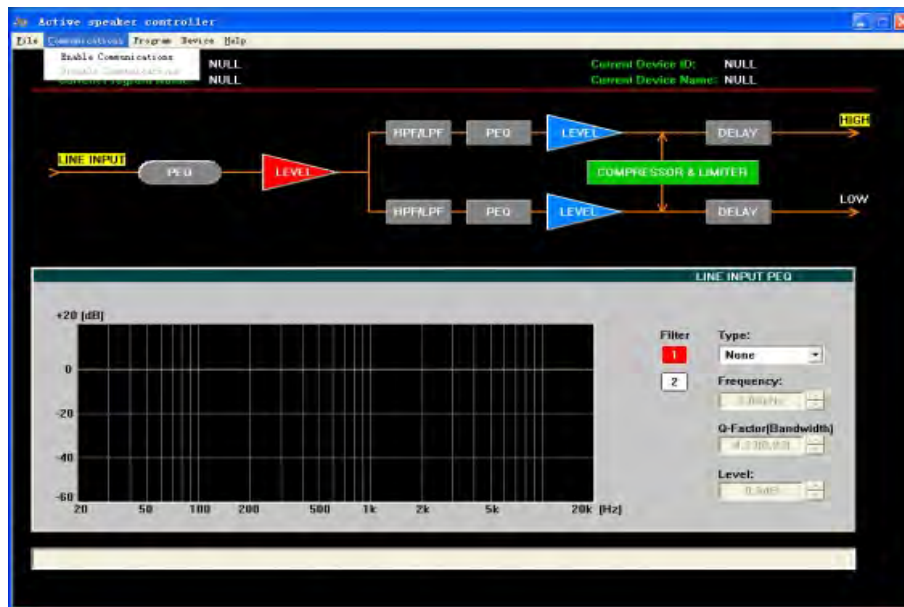

Figure（2）

The software will search the connected (hardware connection) device automatically, "Search Device…" will be shown at the bottom of interface's status bar, see Figure 3:

SOFTWARE APPLICATION GUIDE
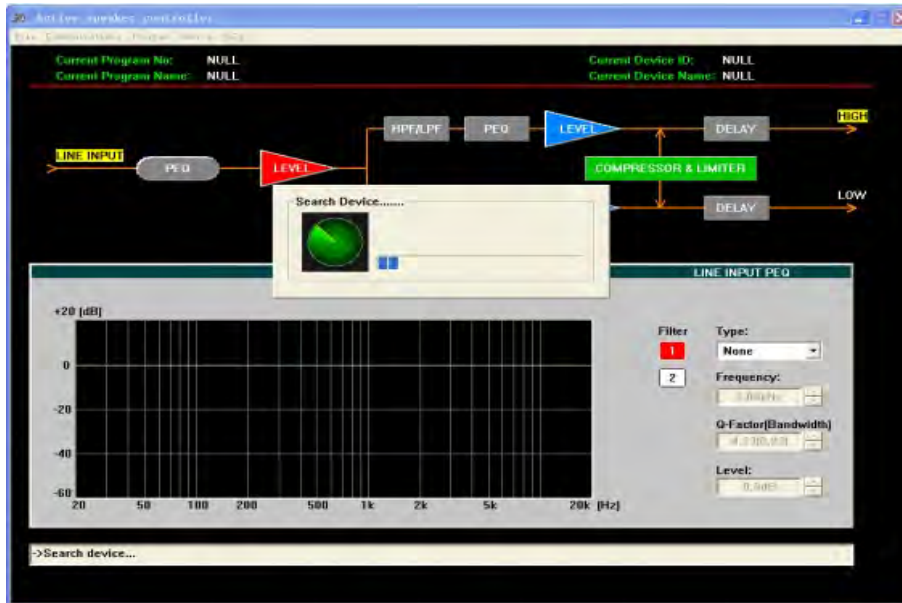
Figure（3）

If found device, shown as Figure 4:
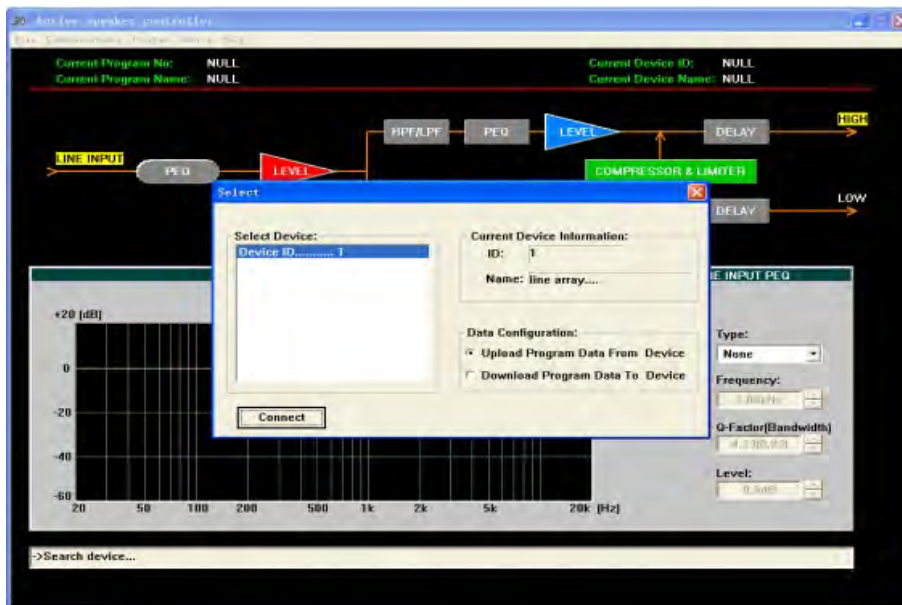
Figure（4）

Devices online are listed at left, the right part shows the information of the device chosen by user. If user want to use the config file that opens from computer,"Download Program Data to Device" must be chosen(the operation execute transmitting the parameters into Device's RAM, if not save into device operation, the parameters will be lost after the device power off). If user chose "Upload Program Data From Device", it will load the current program that stored in device to PC.Select the left device that you will want to connect, click the "Connect" button to start connecting.(! Attention please: If connect with several devices, each device must have its own ID number)

SOFTWARE APPLICATION GUIDE

After connecting successfully, the software will update the display automatically, and show the information of currently connected device, and current program used by device, see Figure 5:
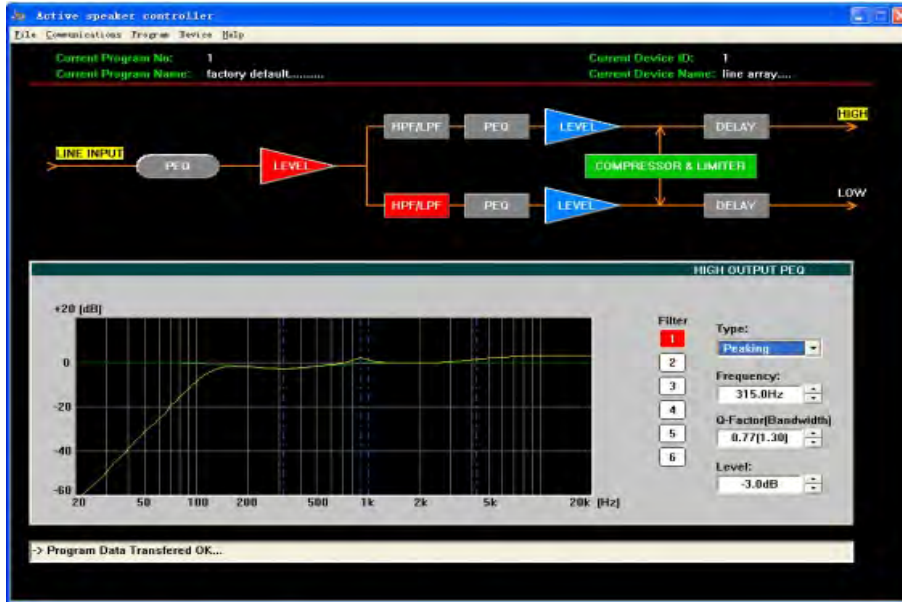
Figure（5）

On above interface, click corresponding function button, and executing those operation that you want.

3. Recall or Save the configuration file.
When the device used in different places, the different configuration file are necessary. Two ways are available for user to recall or save the configuration file.

3.1> Save as a file, When user finish the adjustment, the parameters may be saved as a file into PC through "Save As" in the file menu, see Figure 6:
When you ready to load the config file for later using on other device, you may open the file under the "File" menu.

Figure（6）

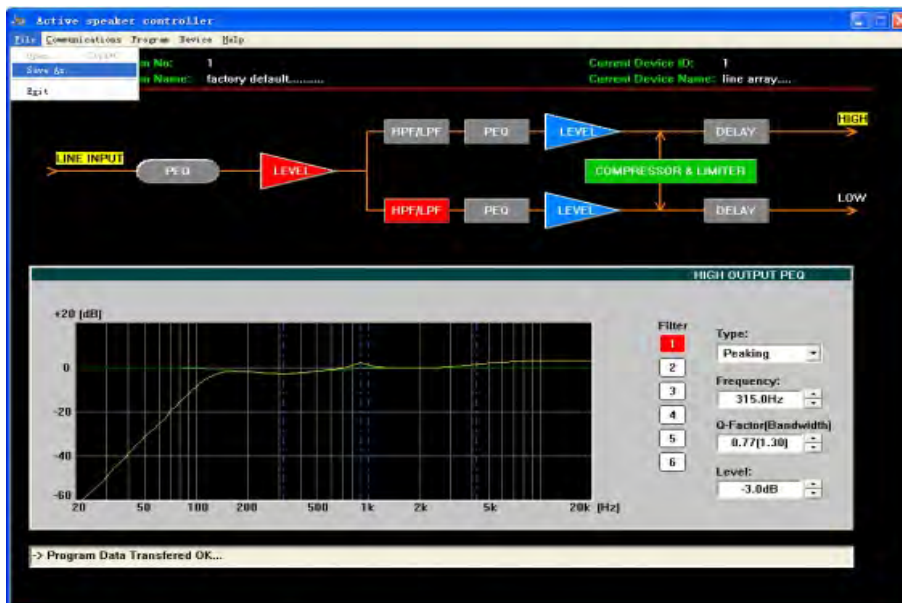## SOFTWARE APPLICATION GUIDE

3.2>User also may save the parameters in the device, total of six programs may be saved through "Save as current program in device" under "program" menu. See Figure 7:
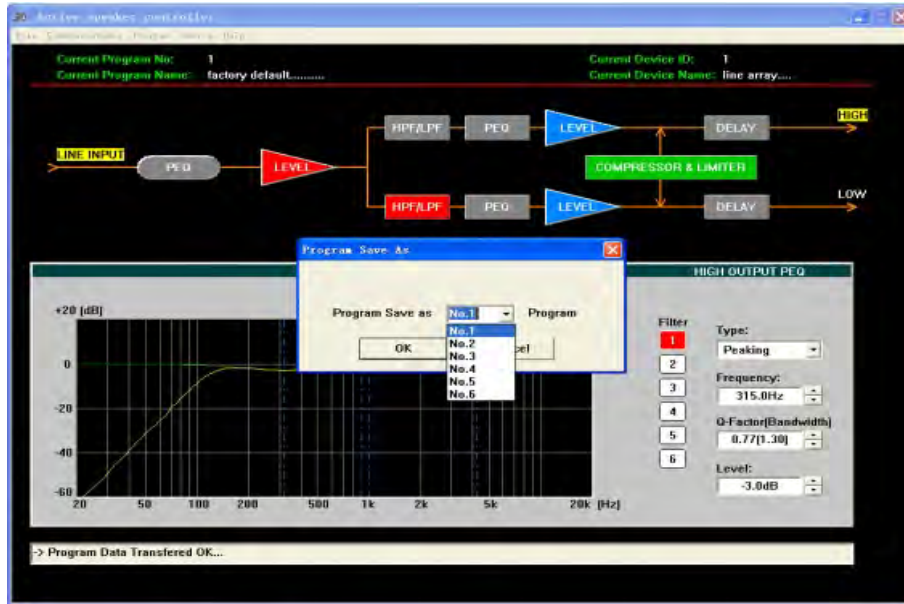

Figure（7）

According to the different file source, the two ways are available for recall the existing configuration file. For the file saved in the computer, it may be recalled from "Open" under "File" menu. Then connect the equipment, choose "Download program data to device" in pop-out dialog box, see Figure 4.

3.3> For the files(or programs) in the device, it may be recalled through "List Program&Recall" in Program menu. See Figure 8
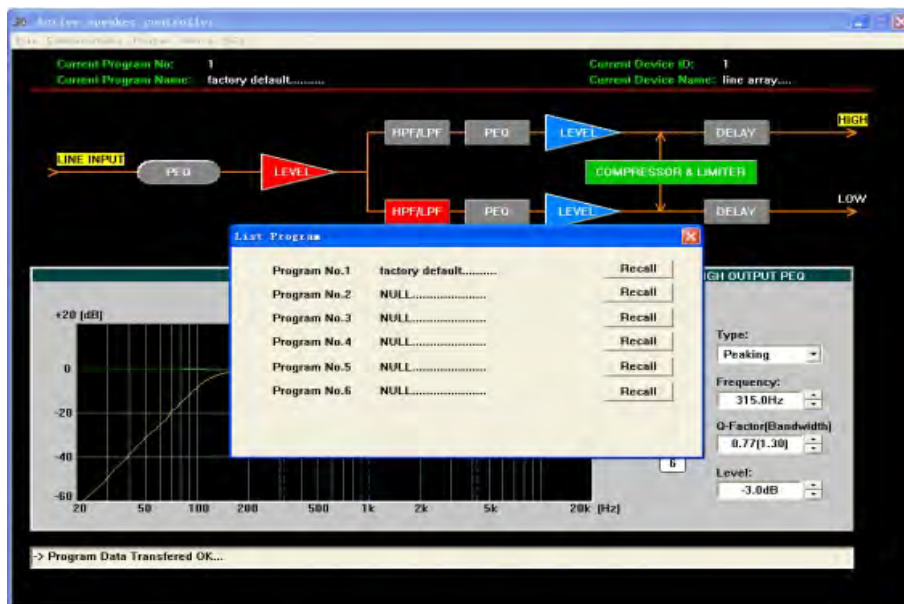

Figure（8）

Select the program you want to use in the pop-out dialog box, then click "Recall" button, the software will update the display automatically, and the device will use the program that has been recalled.

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SOFTWARE APPLICATION GUIDE

4. Change the information of the device that is online.

Device information means the identifier of device, such as the description of device position etc, Include ID and device name. After connecting, it may be changed through clicking"Edit current device information" in device menu, See Figure 9:

! Attention: ID number is only available for number 1~10, that's to say only max 10 device may be connected one RS-485 Net. The max length of name is 14ASCII characters.
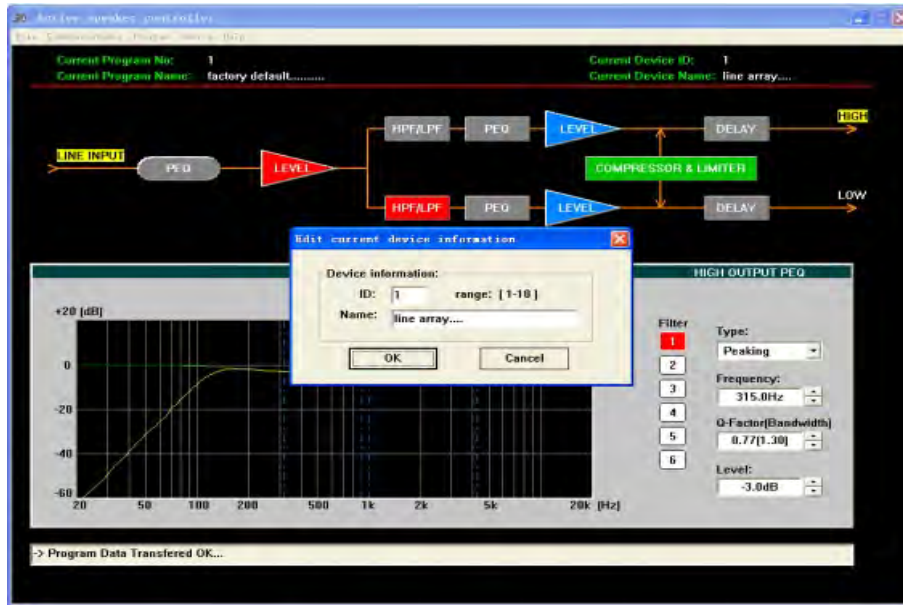

Figure（9）

5. Change the current program name.

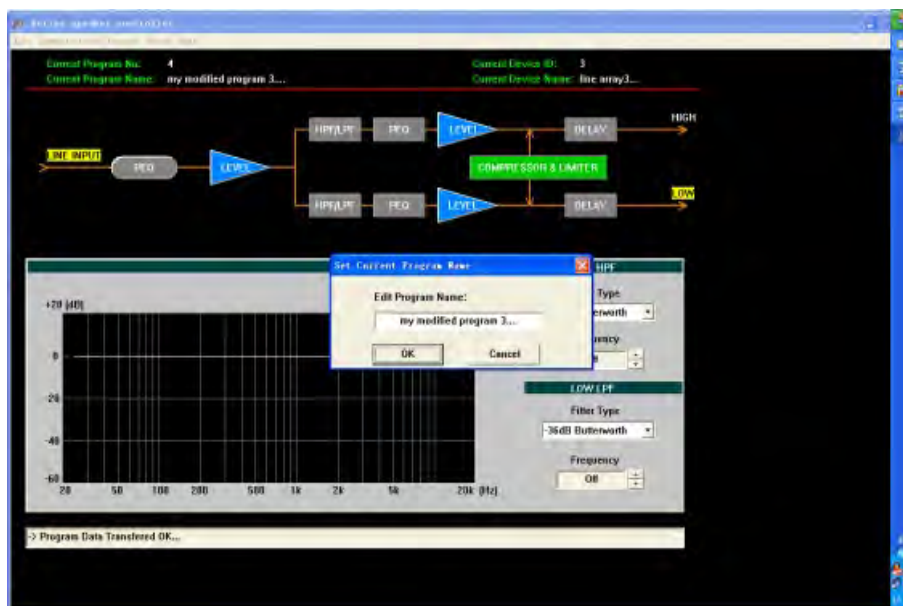Click "Program" menu, choose "Edit current program name" to change the program name, See Figure 10:

Figure（10）

SOFTWARE APPLICATION GUIDE

6. Disconnection.

After finishing the adjustment of parameters, the current parameters may be saved into the device for the next power on operation. If user does not save the program into device, all the changes based on previous parameters will not be saved. Choose "Disable communications" under "communications" menu to disconnection. Please see the figure 11:
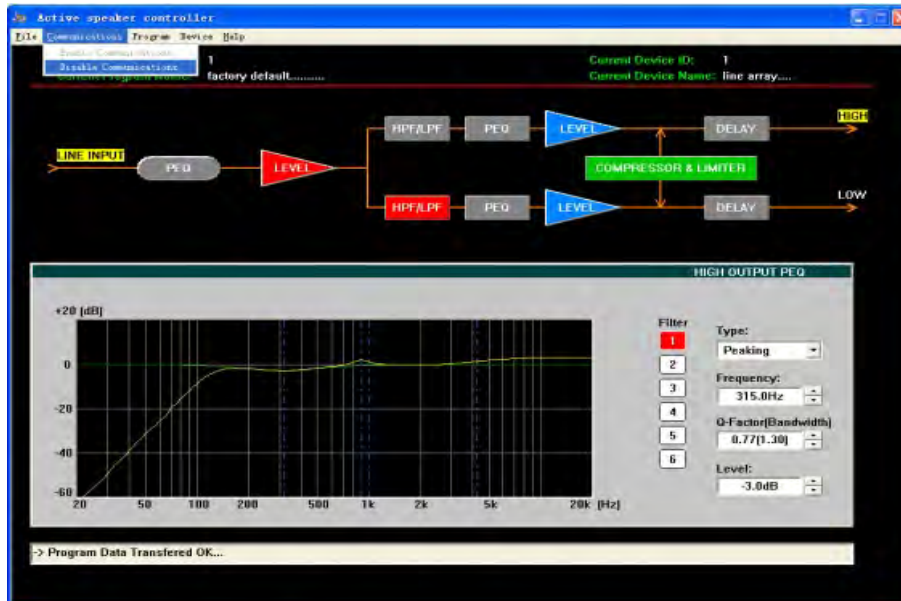

Figure（11）

APPLICATION EXAMPLES

**1.Save current program as another program with new name.**

If user want to save as another program with new name, user should select "program save as" command first, then select "edit current program name" command.

Please see details as below example.

1）After uploading the Program No.1 from the device to the PC, then modify those parameters that you want, then select the "Save As Current Program In Device" command in "Program" Menu:
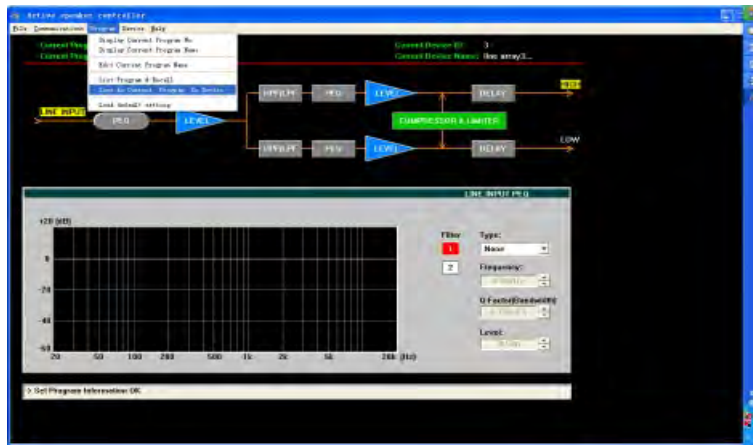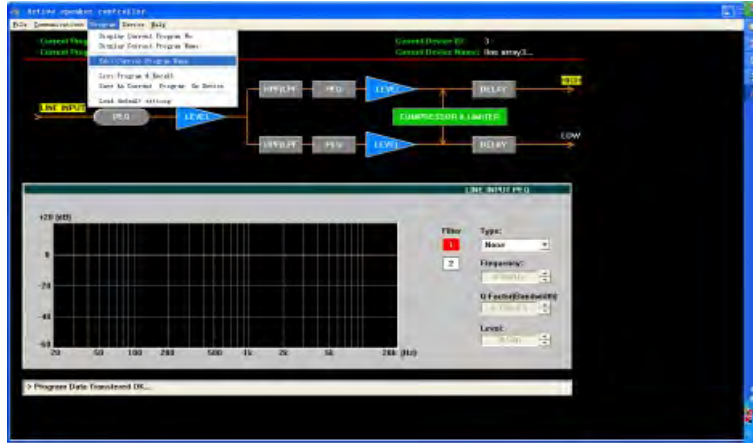

2) Then select the Program Number that will be saved into device:
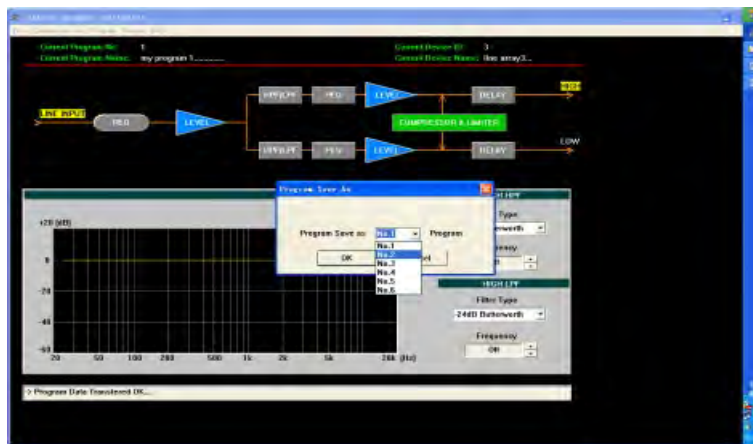
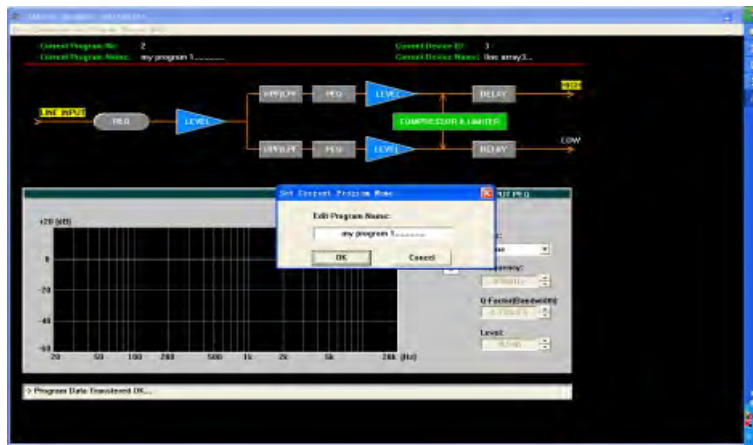Then click "OK" button, the Program No.1 has been saved as Program No.2,and the current program auto changed to No.2(and the Program No.1 just be uploaded to PC has not been changed)

APPLICATION EXAMPLES

3) Then select "Edit Current Program Name" command in "Program" menu:

4) Then on the "Set Current Program Name " interface, edit the program name as you want:

Changed to "my concert hall" as the bellow figure
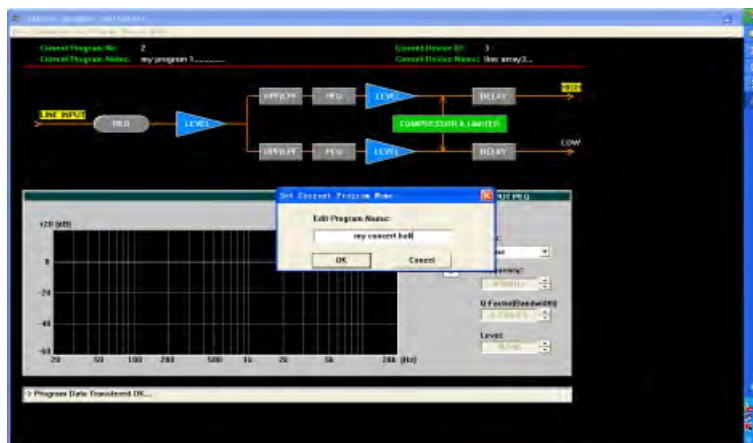
APPLICATION EXAMPLES

5) Click "OK" button, thus the "Current Program Name:" on the main interface has been changed to "my concert hall".
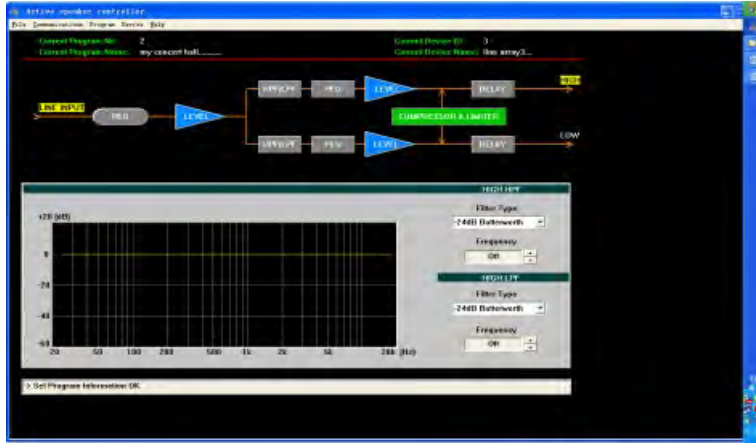
6) Select " List Program & Recall" command in "Program" menu, the result in the program list of the device now as bellow figure:
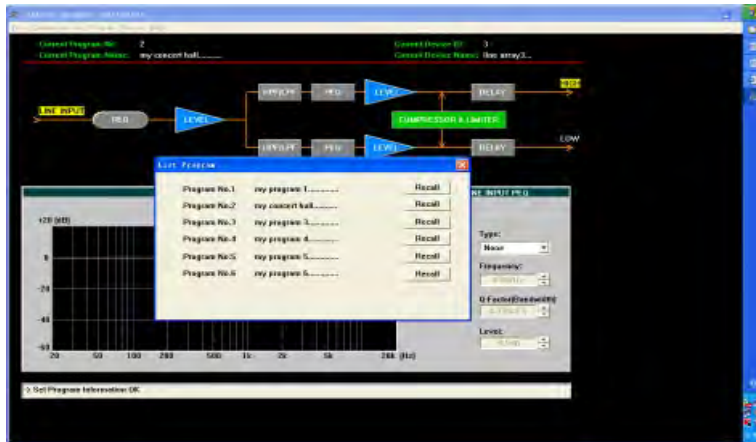
APPLICATION EXAMPLES

2.Save the program which is uploading from device as a file in computer.

Operation for file is only effected on disconnection status. If on connection status, "Edit current program name" is immeditaly valid(auto save into the device). If want to use the config file for later use with another device, You may modify the "program name" on disconnection status.and save as another file. Then download the new config file into device, then "save as" another program or current program into device.

Operation Example Steps:

1) After upload the Program No.3 from the device to the PC, then modify parameters that user want to do, if adjust OK, then select "Disable Communications" command in "Communications" menu.(on discon- nection, those modification does not effect program in device)
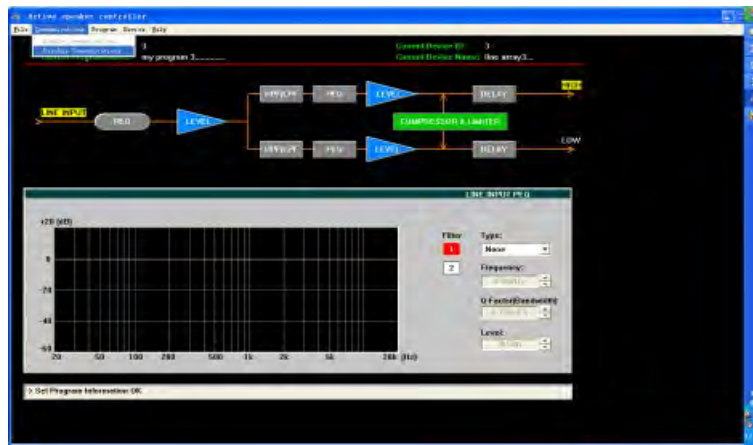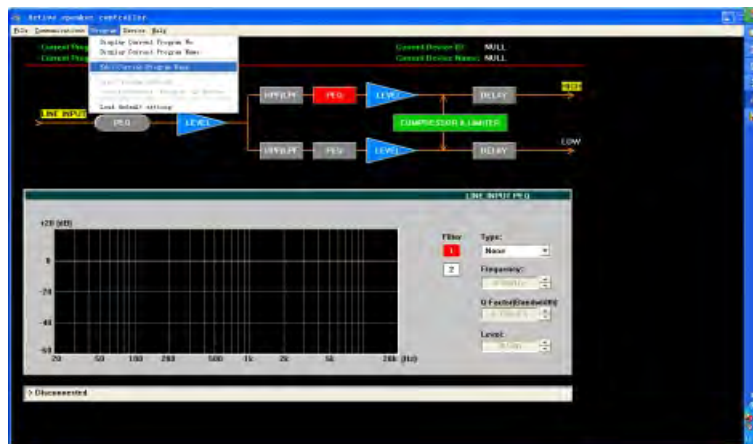

2) If want to change the name, select "Edit Current Program Name" in "Program" menu:

APPLICATION EXAMPLES
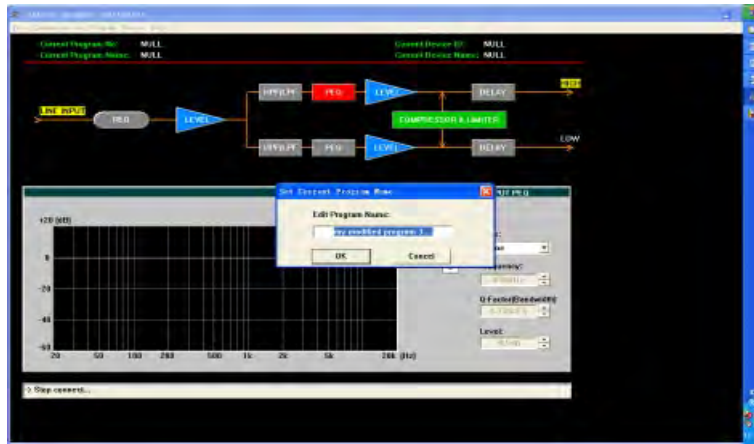
Edit Program Name to "my modified program 3", then click "OK" button.

3) Then select "Save As" command in "File" menu.

4) In the "File Name(N) " frame, input "next hall.asc " ,then click "Save(S) " button.
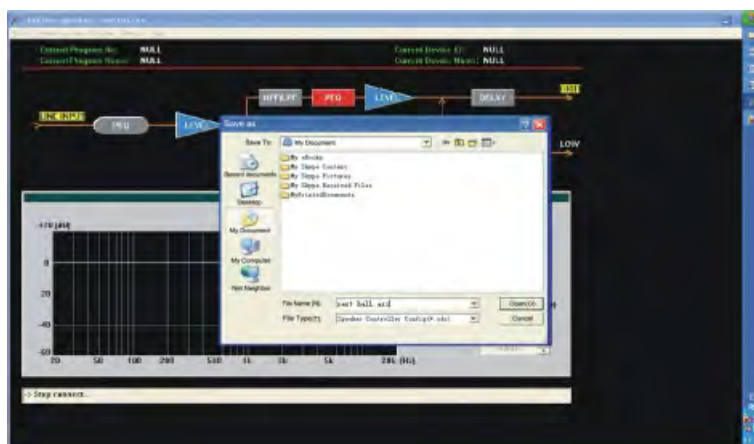
APPLICATION EXAMPLES
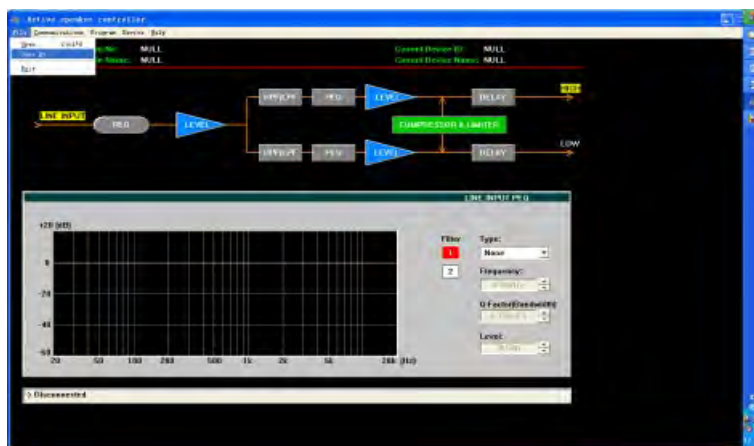
3.Downloading a file into device, and save as program in device.

1) After downloading the config file into DEVICE(only to RAM, before select "Save As Current Program In Device" command, the parameters have not saved into FLASH ROM!)
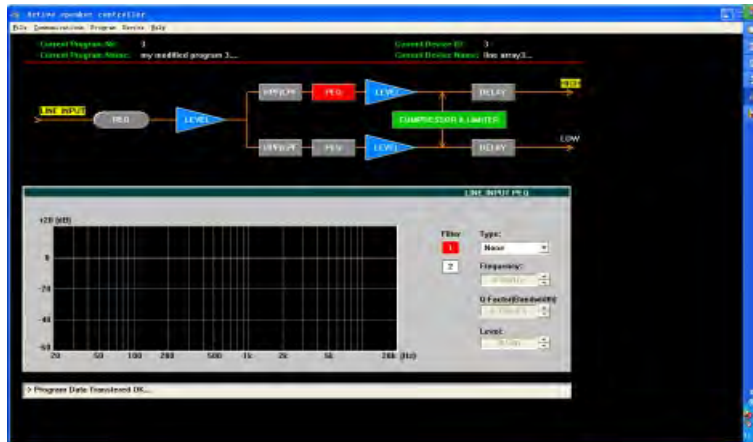
2) Select "Save As Current Program In Device" command in "Program" menu:

3) Then select the No(for example No.4) that you want to save in,
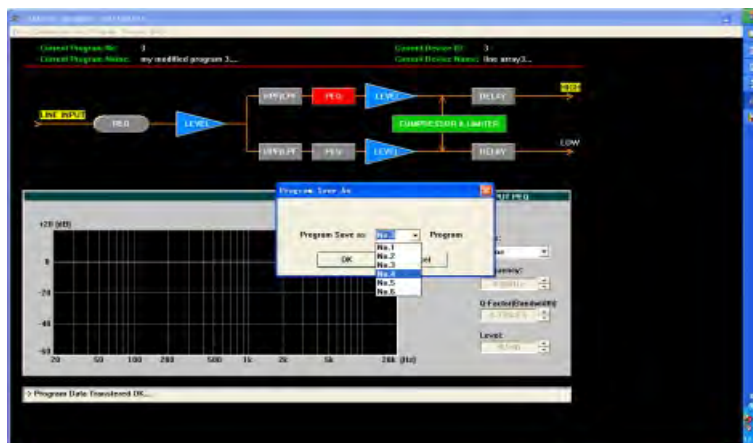
APPLICATION EXAMPLES

Click "OK" button ,then the parameters of config file(next_hall.asc) have been saved as program No.4 in device. The "Current Program No" and the "Current Program Name" are corresponding to File, as bellow figure:

List as below

SAFETY INSTRUCTIONS

DO NOT OPEN THE COVER：
Do not open the cover to avoid the risk of electric shock caused by high voltage parts in the product. Any problems caused by user's wrong actions are out of warranty.
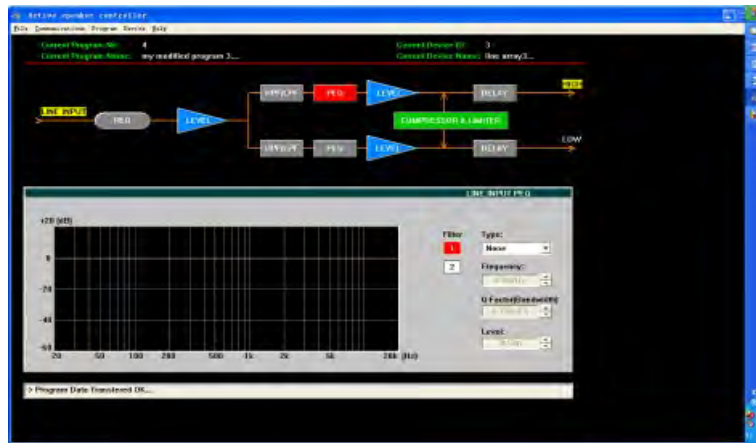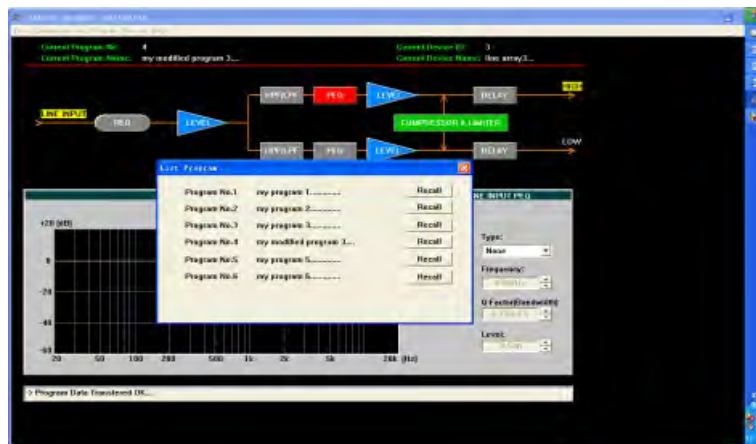
DO NOT DAMAGE THE POWER CORD：
Please hold the plug when pull out or plug in the cord. Do not pull out or touch the cord with wet hand, or it will cause the risk of electric shock. Power supply cords should be routed so they are not likely to be walked upon or pinched by items placed on or again st them. When removing the cord from a power outlet be sure to remove it by holding the plug attachment and not By pulling on the cord.

AVOID OBJECT AND LIQUID ENTRY：
Take care that objects do not fall into and that liquids are not spilled into the inside of the product.If the object or liquid enter the product,please ask qualified personnel to check it.
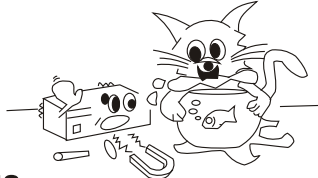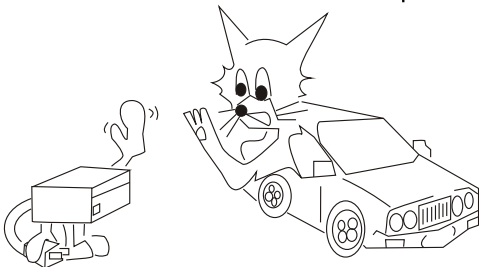
ABNORMAL STATUS：
In the event of abnormal noise and smell, please put off the power supply and pull out the cord, please ask qualified personnel to check it.
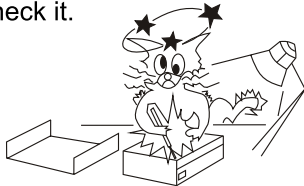
NONUSE FOR A LONG TIME：
When nonuse it for a long time, please put off the power supply and pull out the cord to avoid the unexpected dangers.

LIMITED WARRANTY

If malfunction occurs during the specified warranty period from the date of original purchase, the product will be repaired or replaced without charge by the company .

The Limited Warranty does not apply to:
(a) exterior finish or appearance;
(b) certain specific items described in the individual product data sheet or owner's manual;
(c) malfunction resulting from use or operation of the product other than as specified in the individual product data sheet or owner's manual;
(d) malfunction resulting from misuse or abuse of the product;
(e) malfunction occurring at any time after repairs have been made to the product by anyone other than the company Service or any of its authorized service representatives.

To obtain warranty service, a customer must deliver proof of purchase of the product in the form of a bill of sale or receipt invoice.

LS408aW Speakers and Speaker Systems are guaranteed against malfunction due to defects in materials or workmanship for a period of three (3) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Additional details are included in the Limited Warranty statement.

LS408aW Accessories are guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Limited Warranty statement.
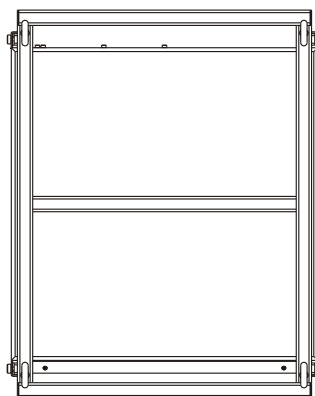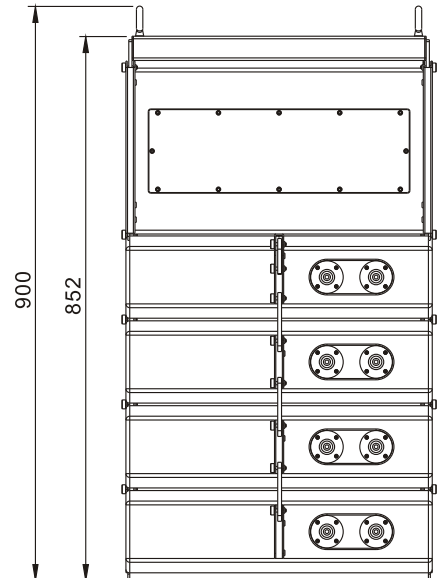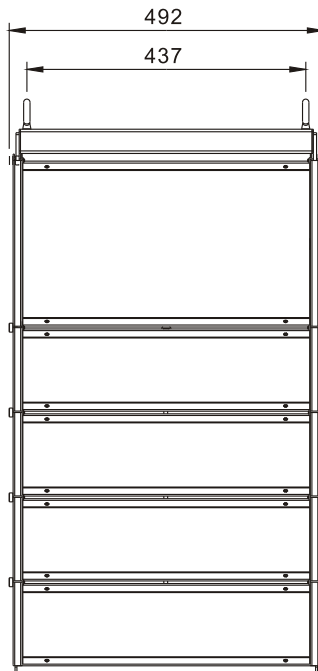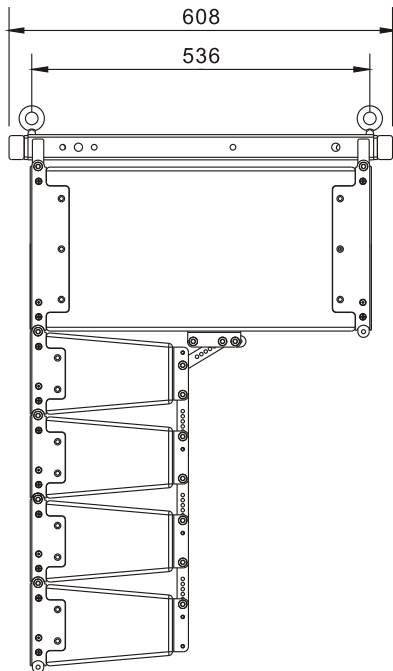
LS408aW Flying Hardware (including enclosure-mounted hardware and rigging accessories) is guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Limited Warranty statement.

Specifications subject to change without notice.

TECHNICAL SPECIFICATIONS

Frequency Range —————————————— 50Hz - 20kHz

Max SLP ——————————————— 115dB/121dB(PEAK)

Horizontal Dispersion ————————————————— 120°

Vertical Dispersion ————————————————— 30° - 90°

Max Constant Power Output For Mid-low Range —— 300W RMS

Max Constant Power Output For Mid-high Range — 75W × 4 RMS

Power Max ———————————————————————— 1100W

Line In Sensitivity ——————————————————— +4dBu

Driver ——————————— LS4:4″ × 2 + RIBBON DRIVER × 1

————————————————————————————————— LS8:8″ × 2

Power Suply (Different AC input versions are available for this product, please pay attention to the AC mark on the product) ——————————————————————————

————————— 240V/230V/220V~T6.3AL 50Hz/60Hz

————————— 120V/115V/110V/100V~T10AL 50Hz/60Hz

Dimensions (WxDxH)—————————— 492 × 608 × 900mm

Net Weight ——————————————————————— 45kg

SOVIS