



# **SLS™ MA480AS and MA460AS 3-Axis Speaker System Installation Guide**

Issue 2

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# SLS Audio

## A Division of Dolby Laboratories

### Headquarters

**SLS Audio**

1650 West Jackson Street  
Ozark, Missouri 65721 USA

**Telephone** 417-883-4589

**Fax** 417-485-5606

[www.slsaudio.com](http://www.slsaudio.com)

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**PRODUCT MODEL:**

This documentation applies to Model CID1000

**PATENTS:**

This product may be protected by patents and pending patent applications in the United States and elsewhere. For more information, including a specific list of patents protecting this product, please visit <http://www.dolby.com/patents>.



## Caution

1. Prior to installing this product, you must read and completely understand the installation instructions. These instructions must be read to prevent personal injury and property damage. Keep the installation instructions in an easily accessible location for future reference.
2. The rigging hardware is intended only for use with SLS Express series speakers. The customer assumes all risk of loss and or injury arising out of the use of the rigging hardware with any other speakers.
3. A system safety cable (not included) must be mounted to the structural steel above the suspended tile ceiling in an auditorium. Do not attach the system safety cable to any wood structure, wood roof joists, or wood frame.
4. Do not install on a structure that is prone to abnormal vibration, movement, or chance of impact. Failure to do so could result in damage to the equipment and/or damage to the mounting surface.
5. Make sure that no water pipes, natural gas lines, electrical wire, or conduit are present where the speaker is to be installed.
6. Cutting or drilling into water pipes, natural gas lines, electrical wire, or conduit could cause serious personal injury or property damage.
7. All information in this guide is meant only for the purpose of instructing the user in the intended use of SLS supplied rigging. All other rigging is considered part of the venue and/or end-user supplied equipment and is not addressed in this guide. SLS assumes that a working knowledge of accepted rigging practices and safety will be applied to all rigging materials and practices employed. This guide is not a comprehensive source for rigging in general. The user assumes all responsibility for the appropriate use of SLS supplied rigging hardware and must follow at a minimum, all applicable laws and regulations in force for each venue.
8. Prior to installation, always inspect all hardware components for wear, deformations, corrosion, and missing or damaged parts.
9. Installation should be performed only by qualified, licensed, and insured installers and installed in accordance with all laws, rules, and regulations applicable to the installation site. Failure to do so could result in serious personal injury or even death.
10. This product is intended for indoor installation/use only. Premature product failure or serious personal injury could occur if this product is used outdoors.
11. If you do not understand these installation instructions, please consult an installation professional.
12. Compliance with local building codes (and, where applicable, national codes) is the buyer and/or installer responsibility.
13. No information contained in this guide is intended as a warranty on the part of SLS. Anyone using this information assumes all liability arising from its use. Product abuse, use of the product not in accordance with SLS instructions, or use in an application which the product has not been designed for is not covered under any SLS warranty, nor is SLS liable for any loss or damage.
14. Users in other countries should consult with local regulatory authorities for specific codes and/or guidelines in the use of this product.
15. Read and follow all warnings, operating instructions, and safety instructions in this manual and on the unit.
16. Speakers should be positioned firmly on rigging hardware attached to the structure. Make sure that the supporting object can handle the load weight of the speakers.

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# Introduction

This document provides step-by-step instructions for installing the SLS™ MA480AS or MA460AS 3-Axis Speaker System. These speaker systems were developed to reduce the time and expense required when installing speakers in Dolby Atmos® cinema environments.

THIS EQUIPMENT MUST BE INSTALLED BY LICENSED PROFESSIONAL INSTALLERS.

## 1.1 Tools Required

To install the MA480AS or the MA460AS, you need the following tools (in addition to the tools required to attach the user-supplied suspension hardware to the structure):

- M8 Allen wrench for main yoke attachment point (M10 bolt)
- Phillips screwdriver for barrier strip speaker wire inputs

## 1.2 Spare Parts

You should replace any defective components with SLS approved parts. Contact the factory directly at 417-883-4549 to obtain approved replacement parts. SLS is not responsible for problems caused by using parts not provided by SLS for the SLS supplied portion of the rigging.

## 1.3 Specifications

Following are the MA480AS and MA460AS general specifications. Due to product improvement research, SLS Audio reserves the right to make changes to existing products without notice.

### 1.3.1 MA480AS

Following are the MA480AS general specifications:

- Frequency response: 60 Hz to 20 kHz
- Sensitivity 1 watt @ 1 meter: 98 dB
- Continuous power rating: 400 watts
- Maximum continuous rated SPL at 1 meter: 124 dB
- Program rated SPL at 1 meter: 127 dB
- Recommended amplifier power rating: 800 watts at 8 ohms
- Coverage angles:
  - 80 degrees vertical, 80 degrees horizontal at top of coverage, 130 degrees horizontal at bottom of coverage
- Driver: 12-inch low frequency with coaxially mounted 2.4-inch high frequency
- Size (including yoke positioned over input plate and yoke fasteners):
  - Width: 21.7 inches (551 millimeters)
  - Height: 20 inches (508 millimeters)
  - Depth: 17.8 inches (453 millimeters)
- Net weight: 25 pounds (11.3 kilograms [including yoke mount])

### 1.3.2 MA460AS

Following are the MA460AS general specifications:

- Frequency response: 60 Hz to 20 kHz
- Sensitivity 1 watt @ 1 meter: 99 dB
- Continuous power rating: 400 watts
- Maximum continuous rated SPL at 1 meter: 125 dB
- Program rated SPL at 1 meter: 128 dB
- Recommended amplifier power rating: 800 watts at 8 ohms
- Coverage angles:
  - 60 degrees vertical, 60 degrees horizontal at top of coverage, 150 degrees horizontal at bottom of coverage
- Driver: 12-inch low frequency with coaxially mounted 2.4-inch high frequency
- Size (including yoke positioned over input plate and yoke fasteners):
  - Width: 21.7 inches (551 millimeters)
  - Height: 20 inches (508 millimeters)
  - Depth: 17.8 inches (453 millimeters)
- Net weight: 25 pounds (11.3 kilograms [including yoke mount])

## 1.4 Customer Support

If you need assistance installing the speaker systems or have other questions, you can contact us at:

Portal: [www.dolbycustomer.com](http://www.dolbycustomer.com)

Email: [cinemasupport@dolby.com](mailto:cinemasupport@dolby.com)

Region	Support Phone Numbers
Americas	+ 1-415-645-4900
EMEA	+ 44-179-384-2130
APAC	+ 86-105-910-3066
Japan	+ 81-3-4540-6782

# Installing the MA480AS and the MA460AS

This chapter is provided for licensed professional installers. The following sections include step-by-step instructions for installing the SLS™ MA480AS or MA460AS 3-Axis Speaker Systems.

## 2.1 Installing the System

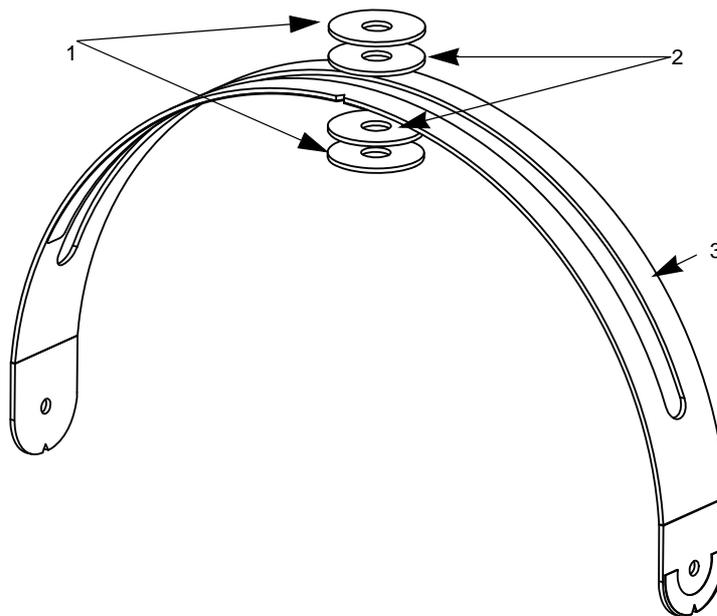
Following are the installation instructions.

### 2.1.1 Identifying the Rigging Parts

The following parts are included in the packing kit. Use these parts along with your desired mounting method (typically, all thread mounted to structure). The MA480AS and MA460AS ship with the yoke installed, but the speaker body is not shown for clarity:

1. Two 20 mm steel washers
2. Two 20 mm neoprene washers
3. One yoke with slot for angle adjustments (while user-supplied captive bolts are still loose)

A safety cable and zip ties are also required, but are not included in this kit. These parts must be provided by the installer. (See [Section 2.1.4.](#))



**Figure 2-1** Rigging Assembly

## 2.1.2 Positioning

The MA460AS and MA480AS provide 3-axis aiming adjustments when using a single mount point to the structure. To properly aim the speaker, you must correctly position the horn. Each of the three axis adjustment angles (D,C, and G) are identified with the same letter as they are by the angle requirements in the Dolby Atmos® Room Design Tool spreadsheet (applicable for both overhead and sidewall positions). The Dolby Atmos Room Design Tool is an Excel-based tool that is used to help design a room and plan equipment to ensure that the design meets Dolby requirements. You can download this tool at [www.dolbycustomer.com](http://www.dolbycustomer.com). If you do not have access, please contact our team at [CinemaSupport@dolby.com](mailto:CinemaSupport@dolby.com) to request the tool. The following figure shows the MA460AS and MA480AS coverage angles.

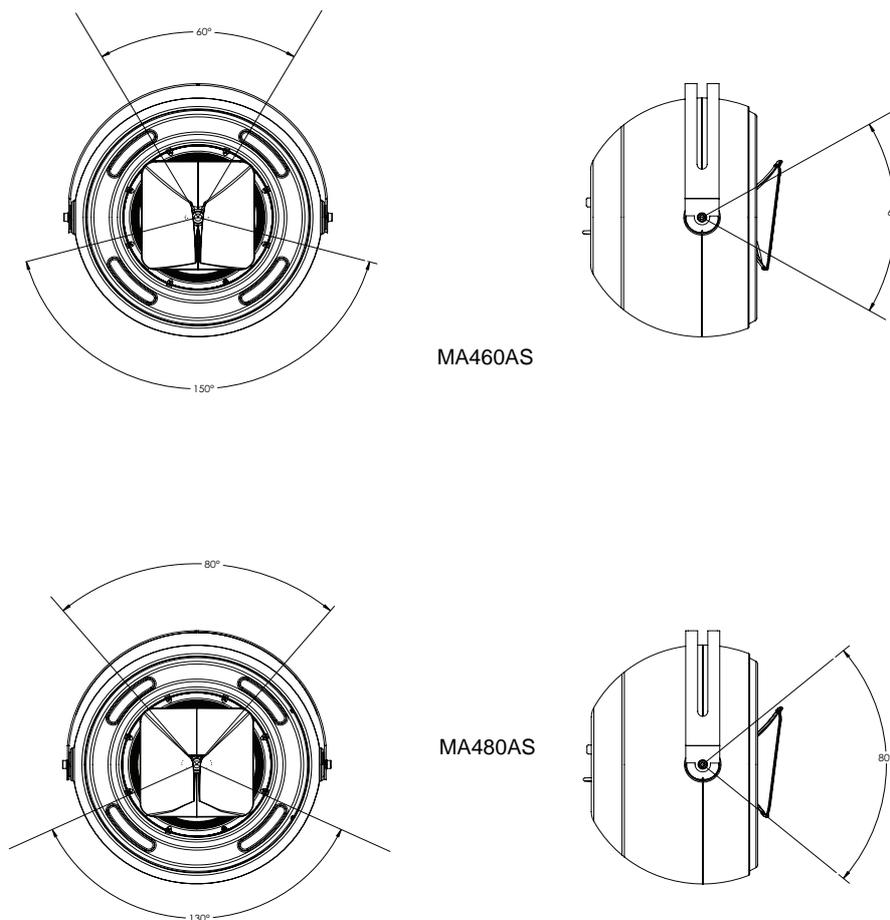
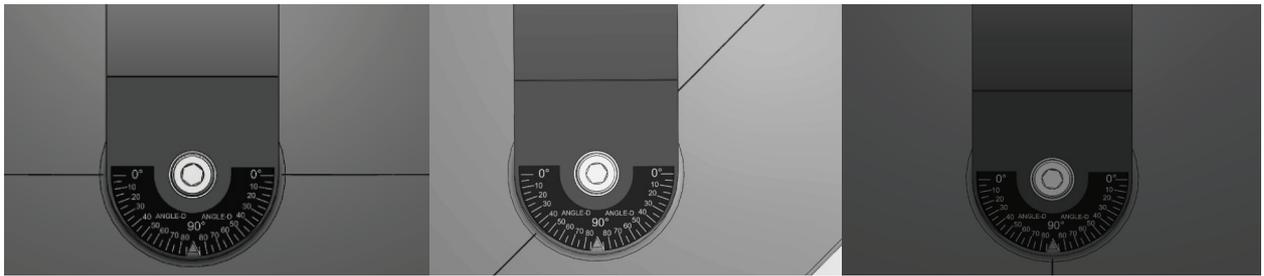


Figure 2-2 Sound Dispersion Views (Shown Without Grille)

The provided yoke attachment to the speaker pivot point is labeled **Angle D**. The parting line in the speaker enclosure is the angle indicator.



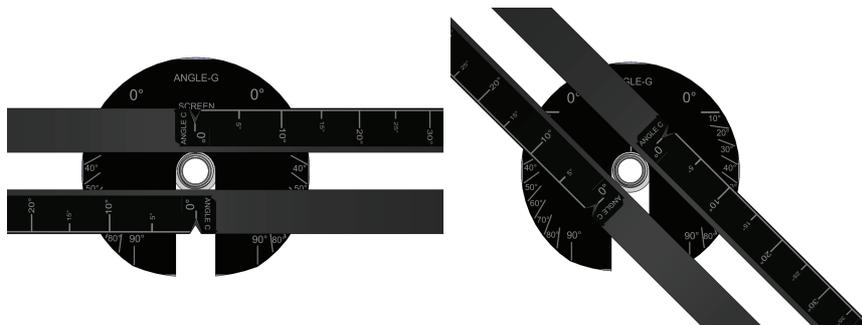
**Figure 2-3** Angle D at 0, 45, and 90 Degrees Using Speaker Body Parting Line as Indicator

The slot in the yoke sliding adjustment is labeled **Angle C**. The following figure is an example of a single point to structure rigging setup used with the **Angle C** yoke sticker to indicate the desired degree. The center of the user-provided suspension point is used as a reference to set the angle.



**Figure 2-4** Angle C at 0 and 45 degrees (Up to 70 Degrees is Obtainable)

The single point attachment to the structure pivot point is labeled **Angle G** (contained in the packing kit). The following figure is an example of using a single rigging point for suspension. This provided angle sticker needs to be adhered to a ceiling tile in the correct orientation as marked on the sticker (the arrow pointing to screen direction). The side of the yoke is used as the angle indicator.



**Figure 2-5** Angle G at 0 and 45 Degrees

To position the unit:

1. Position and tighten the yoke for **Angle C** and **Angle G** with the loudspeaker removed from the yoke.
2. Reinstall the loudspeaker in the yoke.
3. Adjust **Angle D** (using the parting line on the loudspeaker enclosure as the aiming point relative to the provided sticker), and then tighten the M10 bolts to set **Angle D**.



**Note:** The provided aiming sticker for **Angle G** is not calibrated for use with the WMA-15 wall mount kit. An inclinometer placed on the side of the yoke can provide the information needed for **Angle G** when installing on a side wall.

To help with aiming adjustments and to verify that the loudspeaker is not installed upside down, you can also use the grille shape. The furthest extruding formed edge of the grille is parallel with the top edge of the asymmetrical horn. As a result, aligning this formed grille edge with the seating rake for side wall positions and the seating rows for overhead positions, properly orientates the loudspeaker in this axis to the coverage area. This same formed grille edge must always be closest to the ceiling, whether in a side wall or overhead position. This ensures that the horn is not flipped upside down.

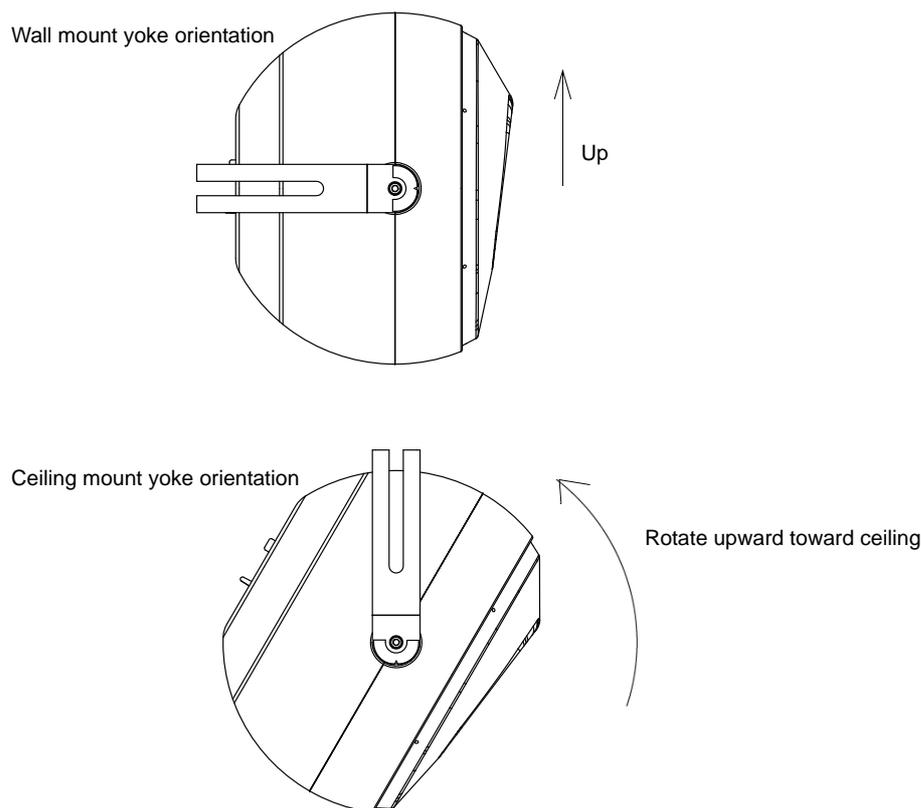


Figure 2-6 Verify Axis Orientation

### 2.1.3 Connecting Audio

To connect audio, connect your speaker wire to the yoke without making contact with the speaker enclosure (to minimize any buzzing). The barrier strips accept 16 to 12 gauge wire, either with spade lugs or bare wire.

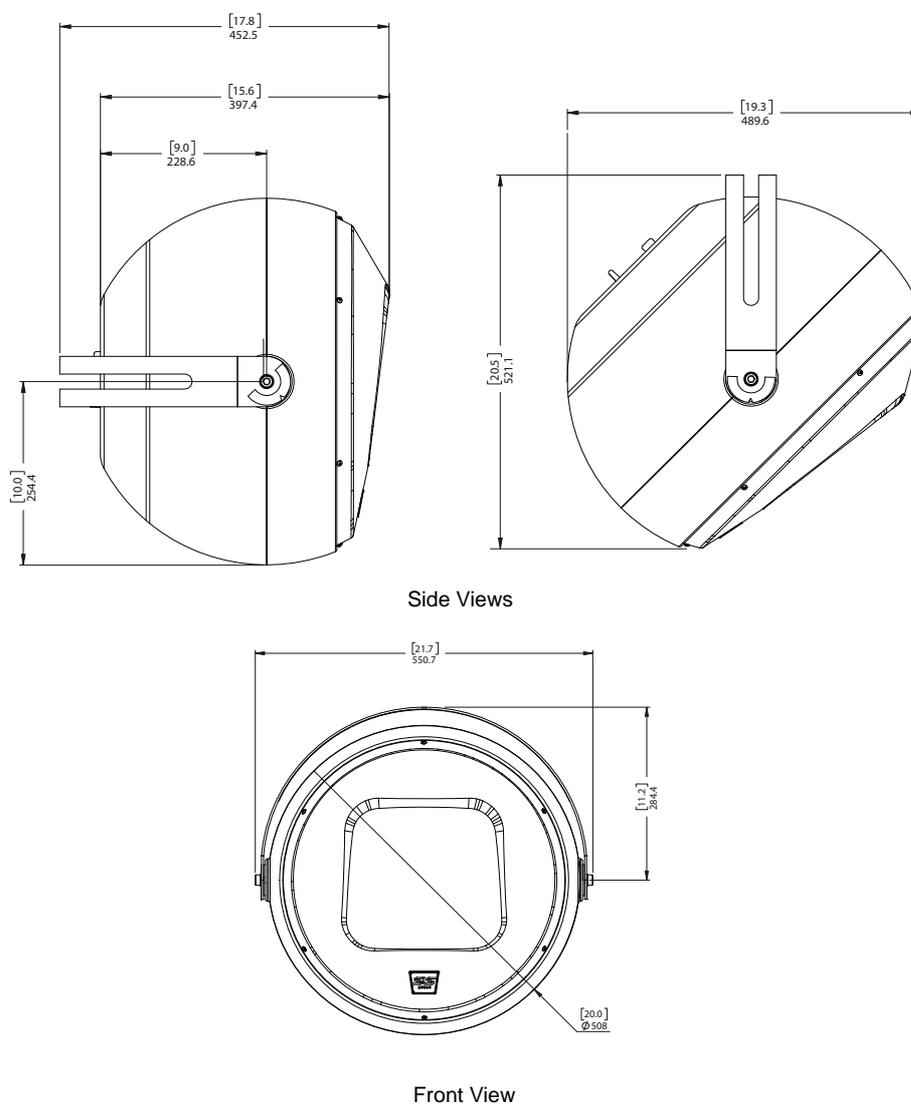
## 2.1.4 Connecting the Safety Cable

You must connect a safety cable (not included) as follows:

1. Use the safety cable to independently connect the speaker to the building structure. An M6 eyebolt (not shown) that is attached to the speaker input plate is provided for this purpose.
2. Pull the safety cable snugly against the M6 eyebolt, and secure the safety cable to the yoke using zip ties (not provided) to minimize the possibility of buzzing against the cabinet or the eyebolt.

## 2.2 Dimensions

Following are the MA480AS and MA460AS side and front views.



(Dimensions in millimeters and inches [in brackets])

**Figure 2-7** MA480AS and MA460AS Side and Front Views

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# Environmental Compliance and Regulations

## EU Environmental Regulations and Compliance

Following are the MA480AS and MA460AS EU environmental regulations and compliance information.

### Waste Electrical and Electronic Equipment (WEEE)



All Dolby products, which must be recycled or handled separately, are marked with this WEEE label in accordance with the EU WEEE Directive.

### Restriction of Hazardous Substances Directive (RoHS)

All Dolby products comply with the requirements of the EU RoHS Directive. For the Dolby Declarations of Conformity, go to <http://www.dolby.com/us/en/about/environmental-commitment.html>.

### Product End-of-Life Information

This product has been designed and built by Dolby Laboratories to provide many years of service, and is backed by our commitment to provide high-quality support. When the product eventually reaches the end of its serviceable life, it should be disposed of in accordance with local or national legislation. For information regarding disposal, go to <http://www.dolby.com/us/en/about/environmental-commitment.html>.

## China RoHS Compliance

Following is the MA480AS and MA460AS China RoHS compliance information.

Declaration of hazardous materials in accordance with The People’s Republic of China Electronic Industry Standard GB/T 26572-2011 in relation to Standard of the Electronics Industry of the People’s Republic of China GB/T 26572-2011, Requirements for Concentration Limits for Certain Hazardous Substances in Electrical and Electronic Products:

杜比实验室依照中华人民共和国电子行业标准 GB/T 26572-2011（电子信息产品污染控制标识要求）以及 GB/T 26572-2011（电子信息产品有毒有害物质的限值要求）对杜比相关产品进行检测，关于杜比电子信息产品中特定有害物质的检测结果如下：

Corporate Name: Dolby Laboratories, Inc.

厂商名称：杜比实验室

Corporate Address: 1275 Market Street, San Francisco, California, USA (94103-1410)

厂商地址：美国旧金山 Market 大街 1275 号

Product Name 产品名称	Toxic or hazardous Substances and Elements 有毒或有害的物质					
	Lead (Pb) 铅	Mercury (Hg) 水银	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯类	Polybrominated diphenyl ethers (PBDE) 多溴联苯醚
CID1000 *	X	O	O	O	O	O
<p>O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572-2011. O: 表示有毒或有害物质存在于用于生产这类产品某些部件的原料中，但是含量在 GB/T 26572-2011（电子信息产品有毒有害物质的限值要求）的允许范围以内。</p> <p>X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572-2011. X: 表示有毒或有害物质存在于用于生产此类部件原料中，且至少有一个原料是超出了 GB/T 26572-2011（电子信息产品有毒有害物质的限值要求）的范围。</p> <p>* Note: These products all conform to EU RoHS Directive (2011/65/EU) with permitted exemptions * 注释：所有这些产品均遵守欧洲 RoHS 指令（2011/65/EU）的限制要求。</p>						



**Note:** For additional environmental information, including the Dolby Declarations of Conformity, go to <http://www.dolby.com/us/en/about/environmental-commitment.html>.