GENELEC®

8320A
8330A

Operating Manual

操作手册

8320A and 8330A Operating Manual

General Description

Genelec 8320A and 8330A are two-way smart active monitors designed for demanding professional applications.

Genelec Smart Active Monitor™ (SAM™) digital signal processing (DSP) built inside each smart active monitor with Genelec Loudspeaker Manager™ (GLM™) software provides unparalleled acoustic quality, ease of use, and high monitoring accuracy even in difficult acoustic environments. The high performance drivers are directly connected to dedicated D Class power amplifiers. System protection is implemented as a part of the SAM signal processing.

The MDE™ (Minimum Diffraction Enclosure™) enclosure is made of die-cast aluminium and shaped to reduce edge diffraction. Combined with the advanced Directivity Control Waveguide™ (DCW™), this design contributes to the excellent acoustic neutrality.

Delivery Contents

Each monitor is supplied with a mains cable, 5 meter RJ45 cable, and an operating manual.

Connections

Before connecting, switch off the monitors and the signal source. Once all the connections have been made, the monitors can be switched on.

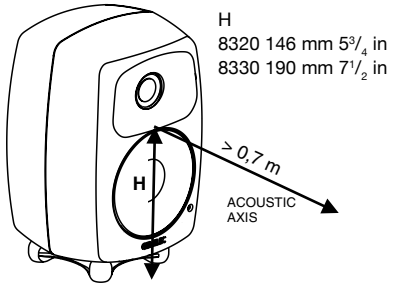

Figure 1: Location of the acoustic axis

Mains Power

The power switch is located on the back panel (see Figure 2). Connect the monitor to a mains socket having a protective earthed connection. Do not connect to an unearthed mains supply or using an unearthed mains cable. These monitors feature an universal mains voltage and can be connected to any voltage between 100-240 VAC 50-60 Hz.

GLM Network Connection

Up to 30 monitors and subwoofers can be connected to a computer using the GLM Adapter. An RJ45 cable is supplied for this. Start control network cabling from the GLM Adapter to the first monitor. Continue daisy-chaining to all monitors and subwoofers (see Figure 3). No special sequence is necessary.

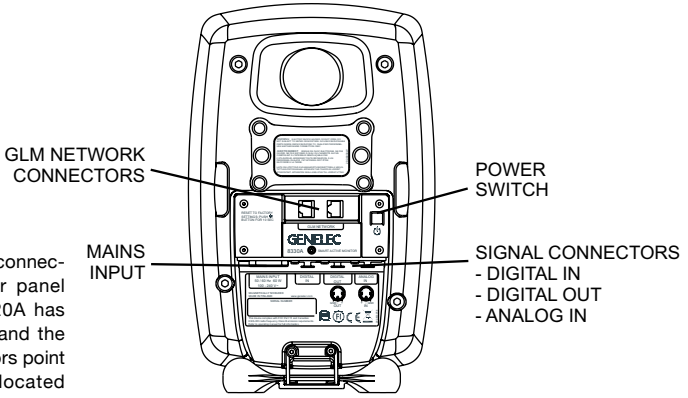

Figure 2: Control and connector layout on the rear panel of an 8330A. The 8320A has an analog input only, and the GLM network connectors point downwards and are located next to the audio input.

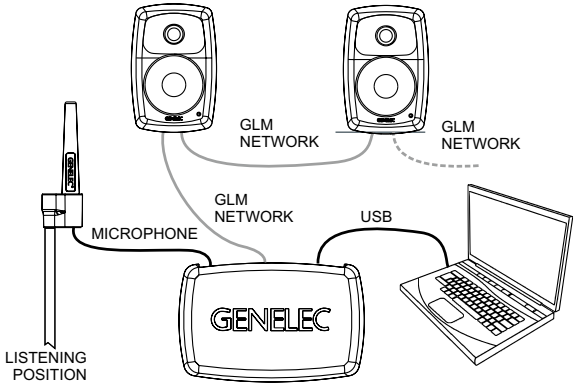

Figure 3: GLM Network Adapter cabling. Audio cabling is not shown.

Analog Audio Input

The analog audio input on both models accepts a balanced male XLR connector.

Digital Audio Input

The 8330A digital audio input (DIGITAL IN) accepts a male XLR connector carrying an AES/EBU formatted digital audio signal. The digital audio can be routed to the next monitor or subwoofer using an XLR output (DIGITAL OUT). The AES/EBU digital audio subframe A or B is selected using the GLM software.

Settings and Acoustic Calibration

The Smart Active Monitors are extremely flexible in compensating the acoustic influences of the room and support automated setup using the GLM User Kit and software. The 8320A and 8330A are compatible with GLM 2.0 and later.

The GLM software can be downloaded from Genelec web site (www.genelec.com/glm). The GLM 2.0 User Kit is needed for the setup. The User Kit contains the GLM Adapter and GLM measurement microphone.

The GLM Adapter is connected to the computer USB port and the GLM network. The GLM measurement microphone is placed at the listening location.

Execute the setup process in the GLM software to align and set up the Smart Active Monitors and Subwoofers as a system. After calibration, keep the computer connected to maintain the settings or save the settings to the Smart Active Monitors using the GLM software.

ISS™ Autostart Function

Intelligent Signal Sensing™ (ISS™) enables very low standby power consumption, less than 0.5 watts.

As a factory default, the ISS function is disabled. The ISS function can be enabled by clicking the “ISS Power Saving” pulldown menu in the GLM software. This menu also provides a selection of the time before entering standby. The playback resumes once an input signal is detected. There is a slight delay before playback resumes.

Mounting Considerations

Align the Monitors Correctly

Place and point the monitors so that their acoustic axes (see figure 1) are aimed towards the listening position. Vertical orientation is preferred, as this minimises the sound colour change around the crossover frequency when the listener is moving horizontally.

Maintain Symmetry

Place the monitors at an equal distance from the listening position and symmetrically relative to the room walls. Place the listening position on the room front-back centreline and the monitors at an equal distance from this centreline.

Minimise Reflections

Acoustic reflections are created by objects close to the monitors. Such objects can be desks, cabinets, computer monitors etc. Acoustic reflections can cause unwanted sound colouration and sound image instability. These can be minimised by placing the monitors and the listening position clear of reflective surfaces.

Minimum Clearances

Sufficient clearance for amplifier cooling and reflex port function must be ensured. The surroundings of the monitor must be open to the listening room with a minimum clearance of 3 centimeters ($1^{3}/_{16}$ in) behind, above, and on both sides of the monitor. The ambient temperature may not rise above 35 degrees Celsius (95°F.)

Mounting Options

The Genelec 8320A and 8330A offer several mounting options: The Iso-Pod™ (Isolation Positioner/Decoupler™) vibration insulating stand allows tilting of the monitor to correctly align the acoustic axis. The bottom of the monitor has

a 3/8 in UNC threaded hole compatible with a standard microphone stand. The rear has two M6 x 10 mm threaded inserts for wall or ceiling mount brackets. Genelec offers a wide variety of mounting accessories. Please consult Genelec web site or your nearest Genelec dealer.

Maintenance

No user serviceable parts are inside the monitor. Maintenance and repair must only be undertaken by qualified service personnel.

Safety Considerations

The 8320A and 8330A have been designed in accordance with international safety standards. The following warnings and cautions must be observed to ensure safe operation and to maintain the monitor under safe operating conditions:

- Servicing must only be performed by qualified service personnel. The monitor must not be opened.
- Do not use the monitor with an unearthed mains cable or an unearthed mains connection.
- Do not expose the monitor to water or moisture. Do not place any objects filled with liquid, such as vases, on the monitor or near it.
- This monitor is capable of producing sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.
- Free flow of air behind the monitor is necessary to maintain sufficient cooling. Do not obstruct airflow around the monitor.
- The device is not completely disconnected from the AC mains service unless the mains power cord is detached from the device or the mains outlet.

Guarantee

This product is guaranteed for a period of two years against faults in materials or workmanship. Refer to supplier for full sales and guarantee terms.

Compliance to FCC Rules

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

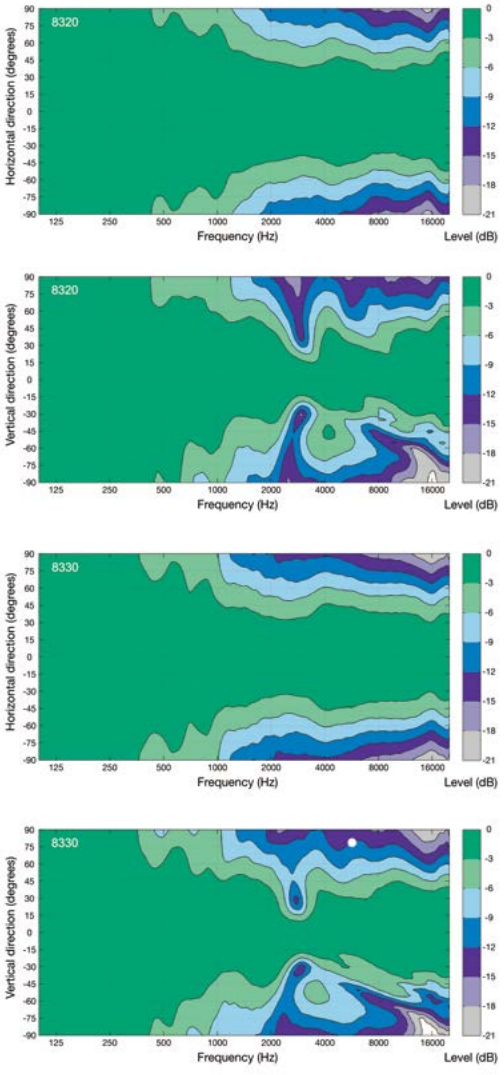

Figure 4: Horizontal and vertical directivity plots of the 8320A and 8330A.

SYSTEM SPECIFICATIONS

	8320	8330
Frequency range –6 dB:	55 Hz – 23 kHz	45 Hz – 23 kHz
Accuracy of frequency response:	±1.5 dB (66 Hz – 20 kHz)	±1.5 dB (58 Hz – 20 kHz)
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz:	> 100 dB SPL	> 104 dB SPL
Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit):	> 94 dB SPL	> 96 dB SPL
Maximum peak acoustic output per pair, at 1 m distance with music material:	> 107 dB	> 110 dB
Self generated noise level in free field on axis:	< 5 dB (A-weighted)	
Harmonic distortion at 85 dB SPL on axis:	50…200 Hz ≤ 3 % >200 Hz ≤ 0.5 %	50…100 Hz ≤ 2 % >100 Hz ≤ 0.5 %
Drivers: Woofer Tweeter	 105 mm (4 in) cone 19 mm ($^{3}/_{4}$ in) metal dome	 130 mm (5 in) cone 19 mm ($^{3}/_{4}$ in) metal dome
Weight:	3.2 kg (7.0 lb)	5.1 kg (11.2 lb)
Dimensions: Height including Iso-Pod™ table stand Height without Iso-Pod™ table stand Width Depth	 242 mm ($9^{1}/_{2}$ in) 230 mm ($9^{1}/_{16}$ in) 151 mm (6 in) 142 mm ($5^{5}/_{8}$ in)	 299 mm ($11^{13}/_{16}$ in) 285 mm ($11^{1}/_{4}$ in) 189 mm ($7^{7}/_{16}$ in) 178 mm (7 in)

AMPLIFIER SECTION

Bass amplifier short term output power Treble amplifier short term output power	50 W 50 W
Total harmonic distortion at nominal output	<0.05%
Mains voltage	100-240 VAC, 50-60 Hz
Power consumption (ISS active / idle / maximum)	< 0.5 W / 3.0 W / 50 W

INPUT SECTION

Digital AES/EBU audio signal connectors (Single wire)	n/a	XLR female IN XLR male OUT
Input word length	n/a	16 - 24 bits
Input sampling rate	n/a	32 - 192 kHz
Crossover frequency	2.9 kHz	
Analog input (load impedance)	XLR female (10 kOhm, balanced)	
Analog input level for 100 dB SPL output at 1 meter	-6 dBu (adjustable in GLM software)	
Maximum analog input	24 dBu	
GLM Control network connectors	2 x RJ45	

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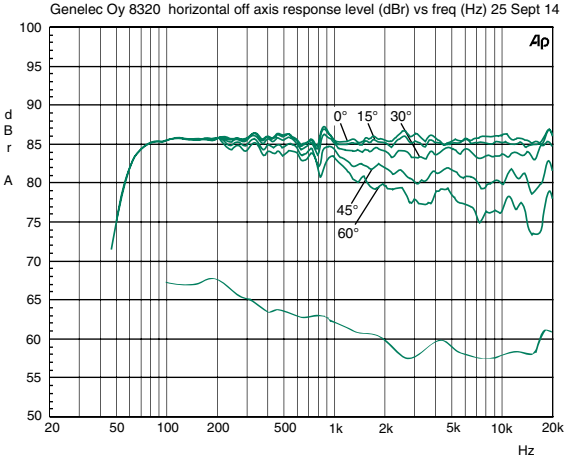

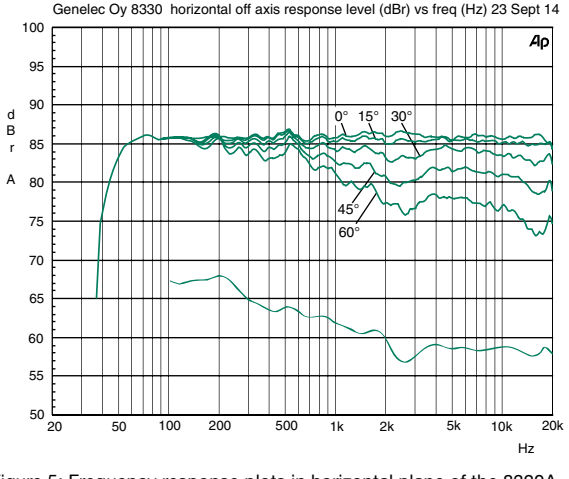

Figure 5: Frequency response plots in horizontal plane of the 8320A and 8330A. The lower curve is the monitor's power response.

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8320A 8330A 操作手册

概述

Genelec 真力 8320A 和 8330A 是专为要求苛刻的专业应用而设计的两分频智能有源监听音箱。

真力智能有源系列音箱 (SAM™) 内置了数字信号处理电路 (DSP)。即使在复杂的声学环境中，真力音箱管理系统 (GLM™) 依然能够使音箱保持无与伦比的音质和便捷性，为您提供高精度的监听。音箱内部高性能的驱动单元搭配专用 D 类功率放大器。信号处理部分包含系统保护电路用于保护您的音箱。

音箱的最低衍射箱体 (MDE™) 采用压铸铝材质，该外形可减少箱体边缘的衍射。结合先进的指向性控制波导技术 (DCW™)，有助于音箱具有卓越中性的声音。

包装

每只音箱配备 1 根电源线，1 根长度 5 米的网线 (RJ45)，以及此本操作手册。

连接

在接线之前，先关闭音箱与音源设备。待系统连接完成后，再打开音箱。

电源

音箱的电源开关位于音箱背板上 (见图 2)。将音箱连接到带有接地保护的电源插座。请勿将音箱连接到未接地的电源插座或使用不包含地线的电源线。音箱支持全球通用电压 (100-240 伏交流电，50 - 60 Hz)。

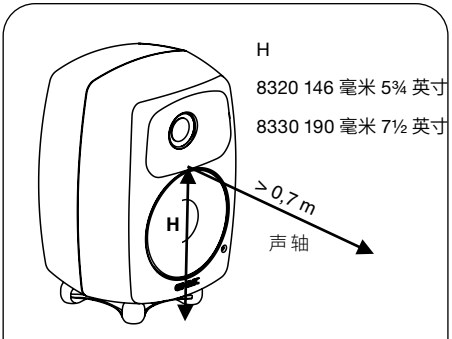

图 1: 声轴的位置

GLM 控制网络连接

全频音箱和超低音箱可以通过 GLM 适配盒连接到电脑。每只音箱配备 1 根 5 类网线 (RJ45)。使用网线将第一只音箱与 GLM 适配盒连接，再以菊花链的方式依次将每只音箱串接起来 (见图 3)。此过程没有特定的连接顺序。

模拟音频输入

使用平衡卡侬 (XLR) 公头连接音箱的模拟输入接口 (ANALOG IN) 传输模拟音频信号。

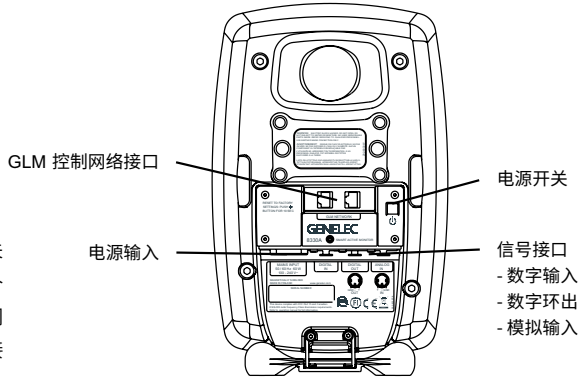

图 2: 8330A 背板的控制开关与接口布局。8320A 仅有一个模拟输入接口，它的 GLM 网络控制接口位于模拟输入接口旁，方向朝下。

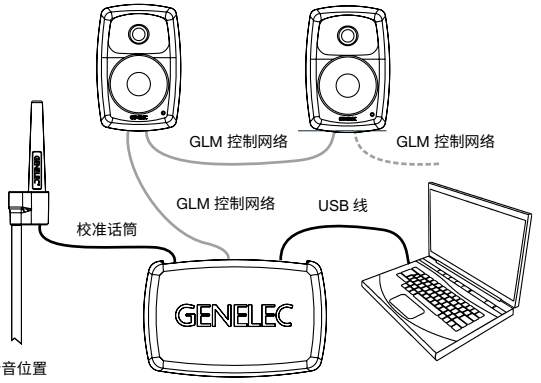

图 3: GLM 控制网络连接示意图。图中未展示音频信号连接。

数字音频输入

使用卡侬（XLR）公头连接 8330A 的数字输入接口（DIGITAL IN）传输 AES/EBU 格式数字音频信号。通过卡侬（XLR）环出接口（DIGITAL OUT）将数字输入信号完整地输出给下一只音箱。需通过 GLM 软件来选择 AES/EBU 数字音频信号的 A 通道或 B 通道。

音箱设置和声学校准

智能有源系列音箱能够非常灵活的补偿房间声学产生的影响，使用 GLM 软件搭配 GLM 用户套件可以实现自动声学校准。8320A 和 8330A 支持 GLM 2.0 及更高版本。

GLM 软件可从真力官方网站 (www.genelec.cn 的“服务支持 > GLM 软件下载”页面) 下载。GLM 软件需要通过 GLM 用户套件对音箱进行设置和校准，套件中包含一个 GLM 适配盒和一支 GLM 校准话筒。

音箱通过网线连接到 GLM 适配盒，适配盒通过 USB 线连接到电脑的 USB 接口。校准话筒需放置于听音位置。

系统中所有的 SAM 系列音箱 (包括超低音箱) 在 GLM 软件中将作为一个整体被设置和校准。校准完成后既可以保持 GLM 软件运行以控制相关设置，也可以将设置存储到音箱中，无需随时运行 GLM 软件。

智能休眠 (ISS™)

智能休眠 (ISS™) 可实现低待机功耗，待机功率小于 0.5 瓦。

智能休眠 (ISS™) 出厂默认为关闭，可在 GLM 软件菜单栏中的“编组预设 (Group Preset) > 保存到音箱 (Store to Loudspeakers)”启用该功能，并可在该页面调整进入休眠状态的等待时间。当检测到输入信号时，音箱将自动回到工作状态。音箱回到工作状态会有轻微的延时。

安装注意事项

正确摆放音箱

请将音箱的声轴 (见图 1) 指向听音位置。垂直放置音箱是最佳选择，当听音者水平移动时，这能最大程度减少分频点附近产生音色变化的问题。

保持对称

确保每只音箱到听音位置的距离相等，并保持与房间墙壁的距离对称。最好将听音位置设置在房间左右的中轴线上，并确保音箱到中轴线的距离相等。

最大程度减少反射

音箱周围的物体会产生声学反射，例如桌面、柜体、电脑显示器等，这会引起不必要的声染色和不稳定的声像定位。将音箱远离反射面放置，可以最大程度减少声学反射。

最小间距

必须确保音箱周围有足够的空间，并与听音室相通 (利于散热)。音箱后方、上方及侧方需留有至少 3 厘米 (1³⁄₁₆ 英寸) 的净空，用于功放散热及倒相孔能够正常工作。确保环境温度不超过 35 摄氏度 (95 华氏度)。

安装选项

8320A 和 8330A 支持多种安装方式：使用隔振底座 (Iso-Pod™) 可以调整音箱倾斜角度，使声轴保持正确的指向。音箱底部的 3/8 英寸粗牙螺纹孔可适配标准话筒支架，音箱背板的 2 个 M6 x 10 毫米螺纹孔可用于安装挂墙或吊顶支架。

此外，真力还提供多种配件供选择，可通过查阅真力网站 www.genelec.cn 上的《真力配件目录 (Genelec Accessories Catalogue)》或者咨询经销商获取更多信息。

维护

音箱内没有任何用户可调整的部分。任何关于产品的维护或维修都应由授权维修服务人员来完成。

安全注意事项

8320A 和 8330A 严格按照国际安全标准设计。您需注意以下警告和注意事项，确保安全操作以及音箱的安全工作条件：

- 切勿自行拆开音箱。任何关于音箱的维护或维修都应由授权维修服务人员来完成。
- 切勿使用未接地的电源线或电源插座。
- 切勿将音箱暴露在水中或潮湿环境。切勿在音箱上或其附近摆放装有液体的物品，例如花瓶。
- 此音箱可以产生超过 85 dB 的声压级，这可能会引起永久性听力损伤。
- 切勿阻挡音箱周围的气流。确保音箱后方有足够的空气流动，使音箱能够充分冷却。
- 请注意，本设备采用电源插头作为断开装置。除非将电源线从设备上或电源插座上拔掉，否则设备并未完全与交流电源断开连接。

质保

产品为材料和工艺上的质量问题提供 2 年的质保服务。通过扫描包装箱上的二维码注册您的音箱，可将质保期延长至 5 年。详细质保条款可在 www.genelec.cn 的“服务支持 > 维修与延保服务”页面查看。

FCC 符合性声明

该设备符合 FCC 标准第 15 部分的要求。操作必须符合以下条件：

（1）此设备不造成有害干扰

（2）设备必须接收所收到的干扰，包括可能导致意外操作的干扰

注意：该设备已经过测试，符合 B 类数字设备的限制，且符合 FCC 标准第 15 部分的要求。这些限制旨在提供合理的保护，防止在住宅区安装时产生有害干扰。该设备会产生、使用并辐射射频能量，如果未按照说明安装和使用，则可能对无线通信造成有害干扰。我们无法保证在特定安装中不产生干扰。如果设备对无线电和电视的接收产生有害的干扰，用户可通过开关该设备进行验证，我们建议用户采用下述一种或多种手段消除干扰：

重新调整天线的方向和位置。

增加该设备与接收器之间的距离。

将该设备和接收器分别连接到不同电路的插座上。

向经销商或有经验的无线电/电视技术人员寻求帮助。

任何未经制造商许可的改动都将让用户丧失在 FCC 规定下操作设备的权力。

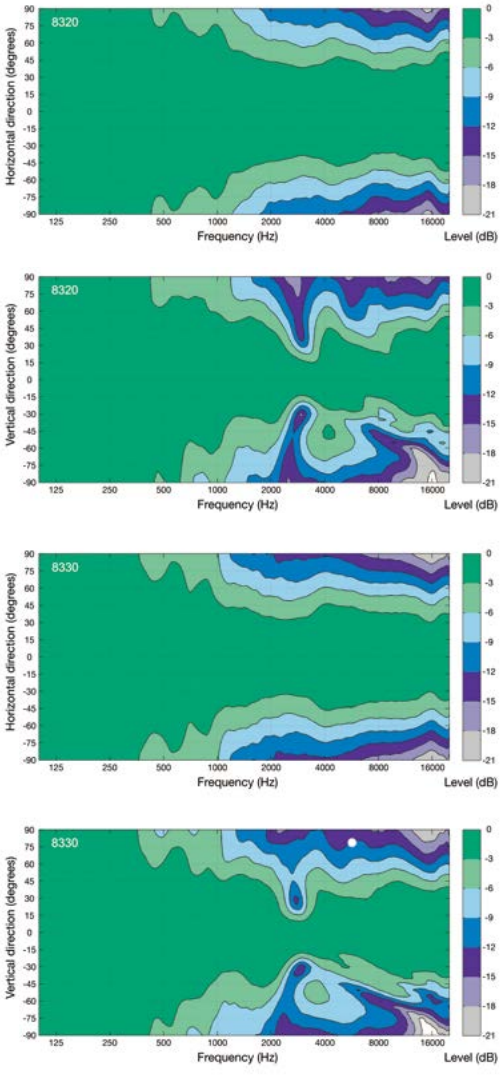

图 4: 8320A 和 8330A 的水平面与垂直面指向特性。

系统参数

	8320	8330
频率响应范围 –6 dB:	55 Hz – 23 kHz	45 Hz – 23 kHz
频率响应精确度:	±1.5 dB (66 Hz – 20 kHz)	±1.5 dB (58 Hz – 20 kHz)
半开放空间内，轴上最大短时正弦波声学输出， 100 Hz – 3 kHz 均值	> 100 dB SPL	> 104 dB SPL
在相同条件下，使用 IEC 计权噪声测试最大长期 RMS 声学输出 （受驱动单元保护电路限制）	> 94 dB SPL	> 96 dB SPL
使用音乐素材进行测试，每对音箱最大峰值 声学输出 @1 米:	> 107 dB	> 110 dB
自由声场内自身噪声电平 @轴上	< 5 dB（A 计权）	
总谐波失真 @85 dB SPL @轴上	50…200 Hz ≤ 3 % >200 Hz ≤ 0.5 %	50…100 Hz ≤ 2 % >100 Hz ≤ 0.5 %
驱动单元: 低音 高音	 105 毫米 (4 英寸) 锥体 19 毫米 (¾ 英寸) 金属球顶	 130 毫米 (5 英寸) 锥体 19 毫米 (¾ 英寸) 金属球顶
重量:	3.2 千克 (7.0 磅)	5.1 千克 (11.2 磅)
尺寸: 高度 含隔振底座 (Iso-Pod™) 高度 不含隔振底座 (Iso-Pod™) 宽度 深度	 242 毫米 (9½ 英寸) 230 毫米 (9$\frac{1}{16}$ 英寸) 151 毫米 (6 英寸) 142 毫米 (5⅝ 英寸)	 299 毫米 (11$\frac{13}{16}$英寸) 285 毫米 (11¼ 英寸) 189 毫米 (7$\frac{7}{16}$ 英寸) 178 毫米 (7 英寸)

功放部分

低音功放短期输出功率 高音功放短期输出功率	50 瓦 50 瓦
在标称输出功率下功放系统失真参数	< 0.05 %
电源电压	100-240 伏交流电, 50-60 Hz
功耗（待机 (ISS)，空闲，最大输出）	< 0.5 瓦 / 3.0 瓦 / 50 瓦

输入部分

AES/EBU 数字信号接口（单线）	无	输入: 卡侬 (XLR) 母座 环出: 卡侬 (XLR) 公座
数字输入量化精度	无	16 - 24 bits
数字输入采样范围	无	32 - 192 kHz
分频点	2.9 kHz	
模拟信号输入接口（负载阻抗）	卡侬 (XLR) 母座 (平衡式 10k 欧姆)	
模拟输入电平 (100 dB SPL @1米)	-6 dBu (可在 GLM 软件中调整)	
最大模拟信号输入	24 dBu	
GLM 控制网络接口	2 个 RJ45 网络接口	

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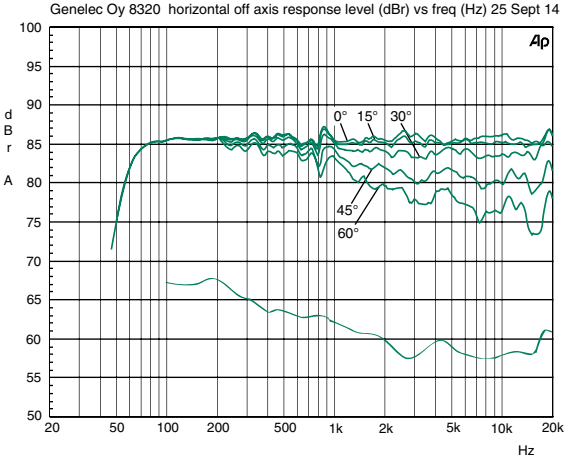

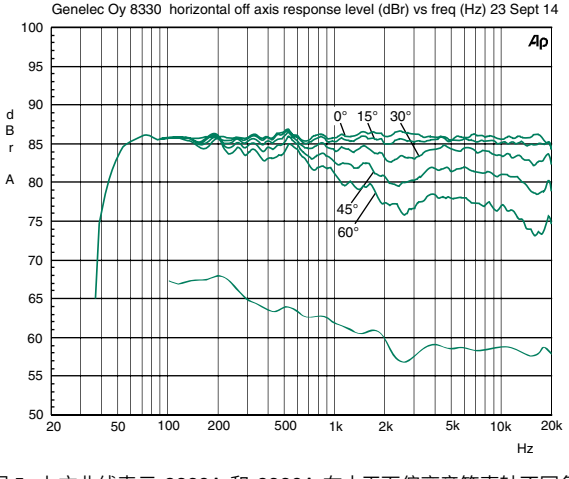

图 5: 上方曲线表示 8320A 和 8330A 在水平面偏离音箱声轴不同角度测得的频率响应曲线。下方曲线表示音箱的功率响应。

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