

GENELEC®

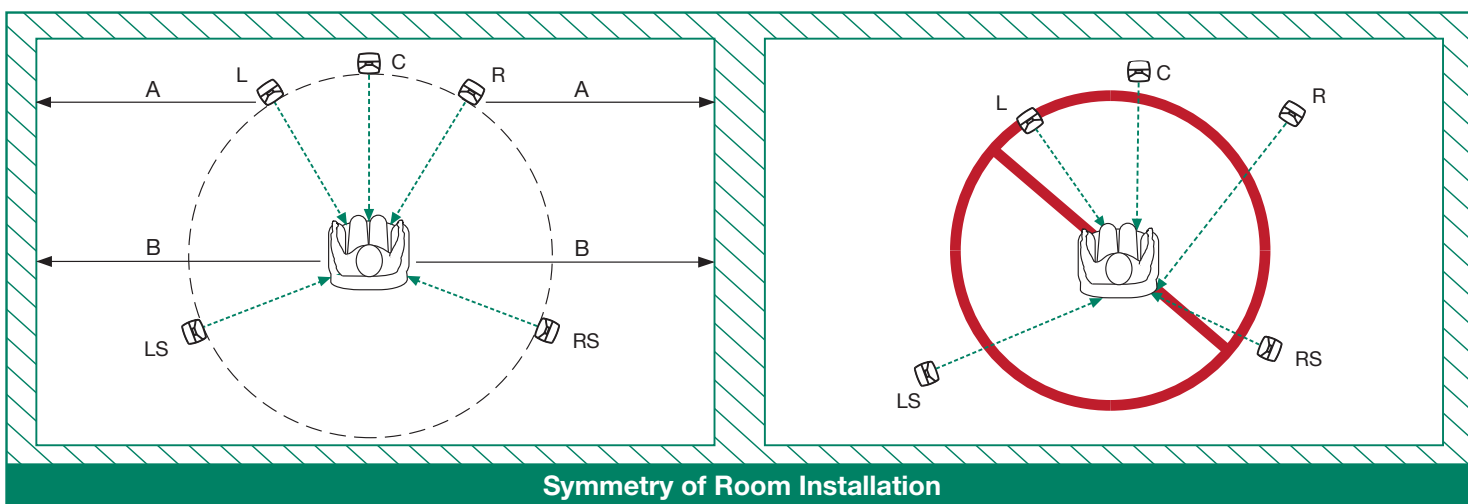
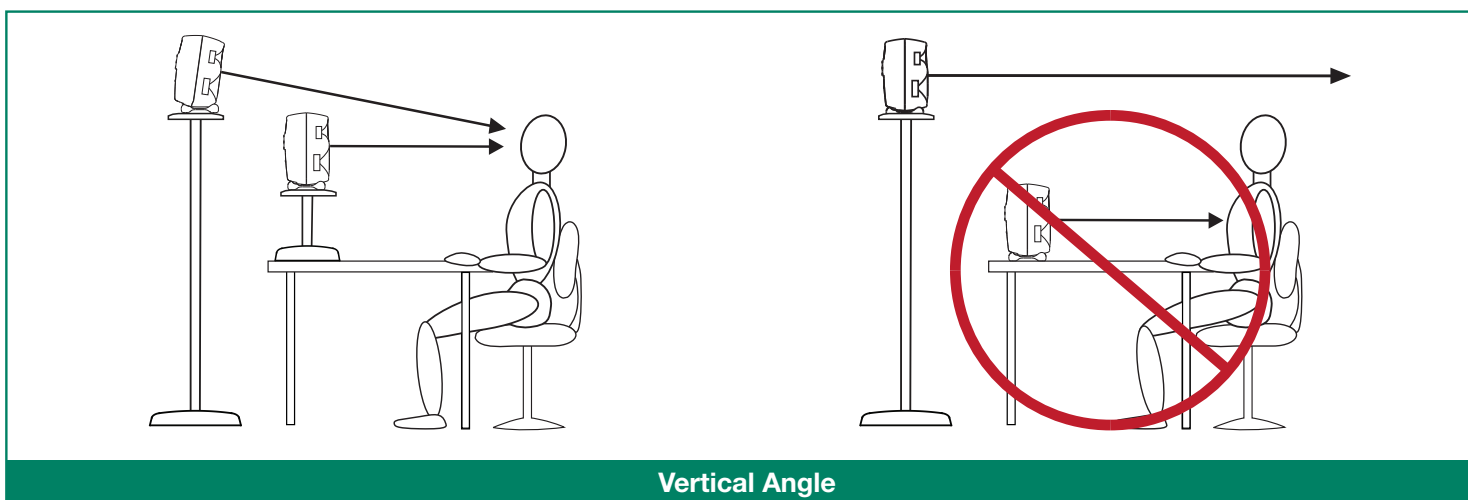
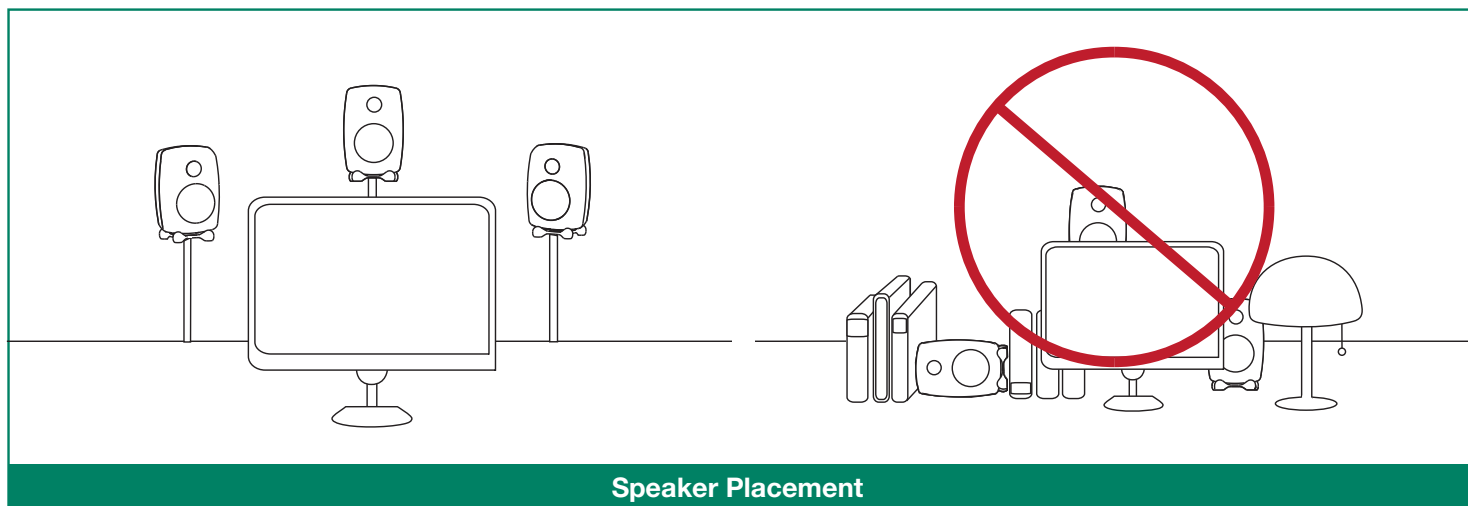
8020D

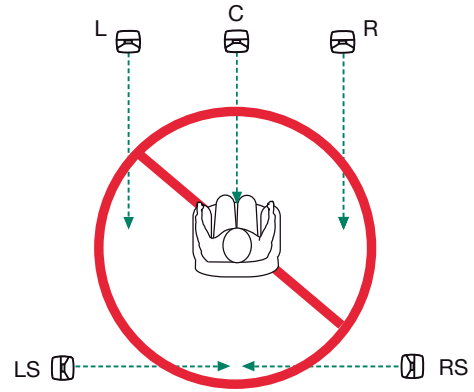
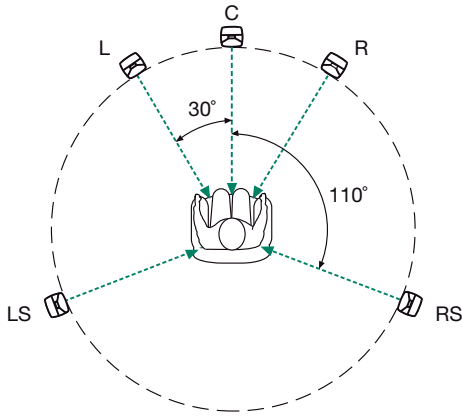
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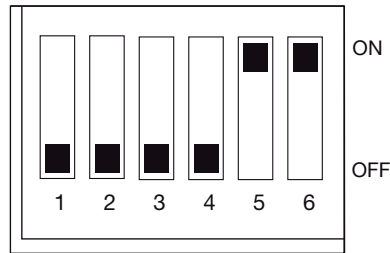
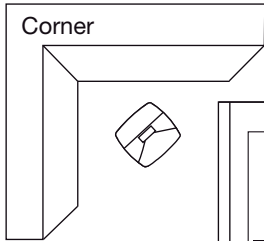
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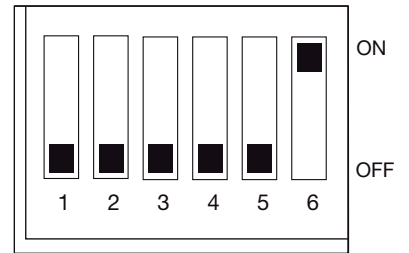
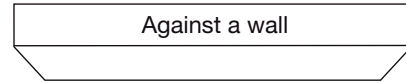




Speaker Angle and Distance



-6 dB Bass Tilt

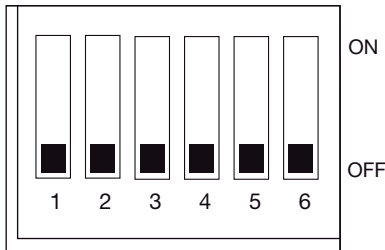


-4 dB Bass Tilt

Using Tone Controls

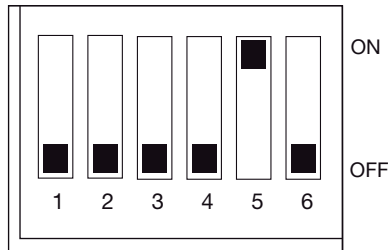
Free standing in adamped room

TONE CONTROL



Free standing in a reverberant room

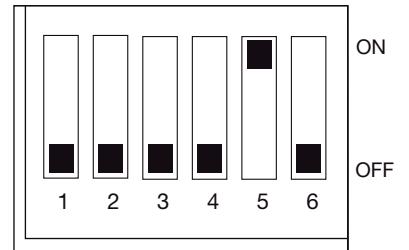
TONE CONTROL



-2 dB Bass Tilt

Nearfield setting

TONE CONTROL



-2 dB Bass Tilt

Suggested Tone Control Settings

8020D Active Monitoring System

Operating Manual

General description

The bi-amplified GENELEC 8020D is a compact two way active monitoring loudspeaker designed for near field monitoring, mobile vans, broadcast and TV control rooms, surround sound systems, home studios, multimedia applications and also for use with computer soundcards. As an active loudspeaker, it contains drivers, power amplifiers, active crossover filters and protection circuitry.

The MDE™ (Minimum Diffraction Enclosure™) loudspeaker enclosure is made of die-cast aluminium and shaped to reduce edge diffraction. Combined with the advanced Directivity Control Waveguide™ (DCW™), this design provides excellent frequency balance in difficult acoustic environments. If necessary, the bass response of the 8020D can be extended with a Genelec subwoofer.

Positioning the loudspeaker

Each 8020D is supplied with an integrated amplifier unit, mains cable and an operating manual. After unpacking, place the loudspeaker in its required listening position, taking note of the line of the acoustic axis. The axes of all loudspeakers should converge at ear height at the listening position (see Figure 1).

Connections

Before connecting up, ensure that the loudspeakers and the signal source have been switched off. The power switch of the 8020D is located on the back panel (see Figure 3). Connect the loudspeaker to an earthed mains connection with the supplied mains cable. Never connect the loudspeaker to an unearthed mains supply or using an unearthed mains cable. The mains input accepts a wide range of voltages: 100-240

V AC 50-60 Hz.

Audio input is via a 10 kOhm balanced female XLR connector. An unbalanced source may be used as long as pin 3 is grounded to pin 1 at the unbalanced source connector (see Figure 2). Never connect the 8020D to the loudspeaker outputs of a power amplifier or an integrated amplifier or receiver.

Once the connections have been made, the loudspeakers are ready to be switched on.

ISS™ autostart function

When the power switch and the “ISS” switch on the back panel of the loudspeaker are set to “ON”, the Intelligent Signal Sensing™ (ISS™) autostart function of the 8020D is active. Automatic powering down to standby mode happens after a certain time when playback has ended. The power consumption in standby mode is typically less than 0.5 watts. The playback will automatically resume once an input signal is detected from the source.

There is a slight delay in the automatic powering up. If this is undesirable, the ISS™ function can be disabled by setting the “ISS” switch on the back panel to the “OFF” position. In this mode, the monitor is powered on and off using the power switch on the back panel.

Sensitivity control

The input sensitivity of the 8020D can be matched to the output of the signal source by adjusting the rotary sensitivity control on the back panel.

Setting the tone controls

The frequency response of the Genelec 8020D can be

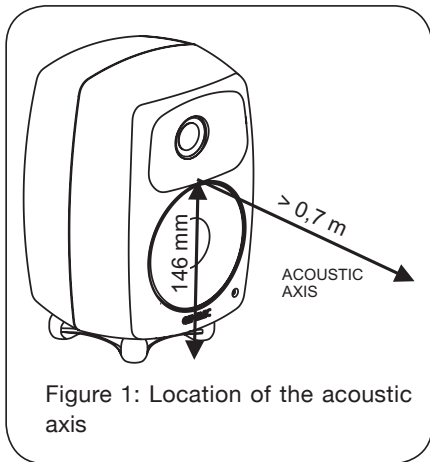


Figure 1: Location of the acoustic axis

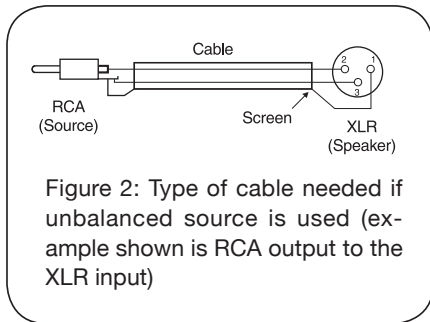


Figure 2: Type of cable needed if unbalanced source is used (example shown is RCA output to the XLR input)

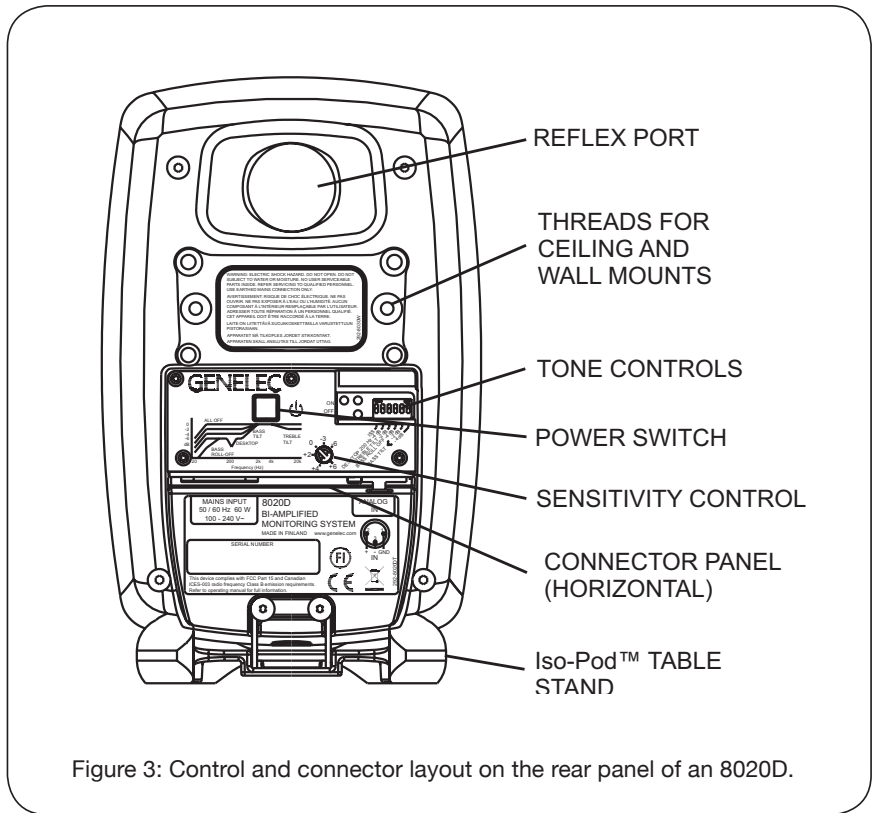


Figure 3: Control and connector layout on the rear panel of an 8020D.

adjusted to match the acoustic environment by setting the tone control switches on the rear panel. The controls are “Desktop 200 Hz”, “Treble Tilt”, “Bass Tilt” and “Bass Roll-Off”. An acoustic measuring system is recommended for analyzing the effects of the adjustments, however, careful listening with suitable test recordings can also lead to good results. Table 1 shows some examples of typical settings in various situations. Figure 4 shows the effect of the controls on the anechoic response.

Desktop 200 Hz

The desktop low frequency control (Switch 2) attenuates the bass frequencies around 200 Hz by 4 dB. This feature is designed to compensate for the boost often occurring at this frequency range when the loudspeaker is placed upon a meter bridge, table or similar reflective surface.

Treble Tilt

Treble Tilt control (switch 3) attenuates the treble response of the loudspeaker at frequencies above 5 kHz by 2 dB, which can be used for smoothening down an excessively bright sounding system.

Bass Tilt

Bass Tilt control offers three attenuation levels for the bass response of the loudspeaker below 2 kHz, usually necessary when the loudspeakers are placed near a wall or other room boundaries. The attenuation levels are -2 dB (switch 6 “ON”), -4 dB (switch 7 “ON”) and -6 dB (both switches “ON”).

Bass Roll-Off

Bass Roll-Off (switch 4) activates a -4 dB filter to the lowest bass frequencies (65 Hz). This can be used for compensating

Loudspeaker Mounting Position	Desktop	Treble Tilt	Bass Tilt	Bass Roll-Off
Flat anechoic response	OFF	OFF	OFF	OFF
Free standing in a damped room	OFF	OFF	OFF	OFF
Free standing in a reverberant room	OFF	OFF	-2 dB	OFF
Near field or console bridge	ON	OFF	OFF	OFF
Near to a wall	OFF	OFF	-4 dB	OFF
On a desk	ON	OFF	-2 dB	OFF

Table 1: Suggested tone control settings for differing acoustical environments

excessively heavy bass reproduction typically caused by loudspeaker placement near room boundaries.

The factory setting for all tone controls is “OFF” to give a flat anechoic response. Always start adjustment by setting all switches to “OFF” position. Measure or listen systematically through the different combinations of settings to find the best frequency balance.

Mounting considerations

Align the loudspeakers correctly

Always place the loudspeakers so that their acoustic axes (see figure 1) are aimed towards the listening position. Vertical placement is preferred, as it minimises acoustical cancellation problems around the crossover frequency.

Maintain symmetry

Check that the loudspeakers are placed symmetrically and at an equal distance from the listening position. If possible, place the system so that the listening position is on the centerline of the room and the loudspeakers are placed at an equal distance from the centerline.

Minimise reflections

Acoustic reflections from objects close to the loudspeakers like desks, cabinets, computer monitors etc. can cause

unwanted colouration of the sound image. This can be minimised by placing the loudspeaker clear of reflective surfaces. For instance, putting the loudspeakers on stands behind and above the mixing console and tilting them down to point the acoustic axes to ear level at the listening position usually gives a better result than placing the loudspeakers on the meter bridge.

Minimum clearances

Sufficient clearance for cooling of the amplifier and functioning of the reflex port must be ensured if the loudspeaker is installed in a restricted space such as a cabinet or integrated into a wall structure. The surroundings of the loudspeaker must always be open to the listening room with a minimum clearance of 3 centimeters ($1\frac{3}{16}$ ”) behind, above and on both sides of the loudspeaker. The space adjacent to the amplifier must either be ventilated or sufficiently large to dissipate heat so that the ambient temperature does not rise above 35 degrees Celsius (95°F.)

Mounting options

The Genelec 8020D offers several mounting options: The Iso-Pod™ (Isolation Positioner/Decoupler™) vibration insulating table stand allows tilting the loudspeaker for correct alignment of the acoustic axis. On the base of the

loudspeaker is a 3/8 in UNC threaded hole compatible with a standard microphone stand. On the rear there are two M6x10 mm threaded holes for wall or ceiling brackets or the keyhole wall mount adapter provided with the loudspeaker.

Maintenance

No user serviceable parts are to be found within the loudspeaker. Any maintenance or repair of the 8020D must only be undertaken by qualified service personnel.

Safety considerations

Although the 8020D has been designed in accordance with international safety standards, the following warnings and cautions should be observed to ensure safe operation and to maintain the loudspeaker under safe operating conditions:

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

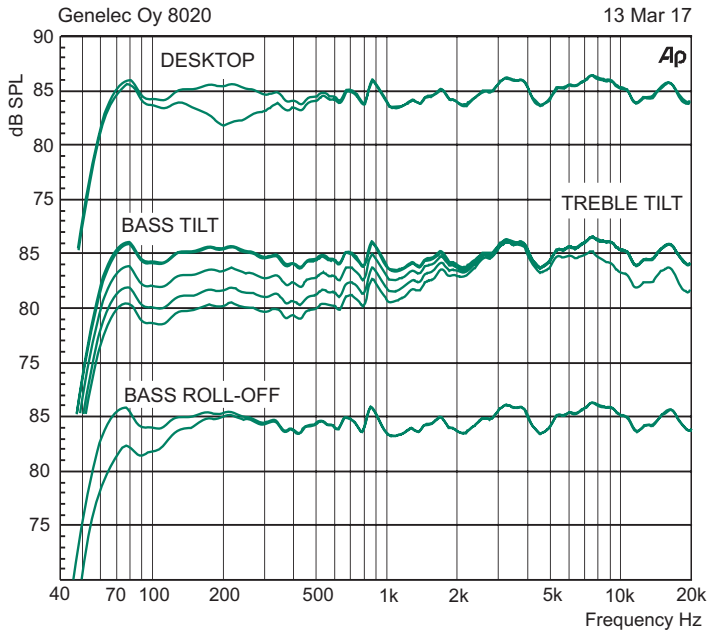


Figure 4. The curves show the effect of the “Bass Tilt”, “Treble Tilt”, “Desktop 200 Hz” and “Bass Roll-Off” controls on the free field response of the 8020D.

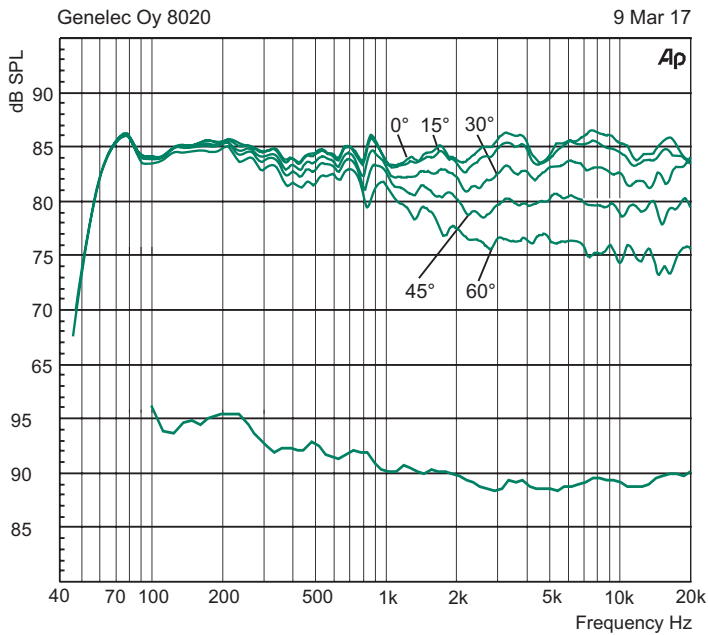


Figure 5. Frequency responses at 0, 15, 30, 45 and 60 degree angles and power response in full space. Input level -20 dBu.

SYSTEM SPECIFICATIONS

Lower cut-off frequency, -6 dB: ≤ 56 Hz

Upper cut-off frequency, -6 dB: ≥ 25 kHz

Accuracy of frequency response:
62 Hz – 20 kHz (± 2.5 dB)

Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz:
at 1 m ≥ 100 dB SPL

Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit):
at 1 m ≥ 93 dB SPL

Maximum peak acoustic output per pair, at 1 m distance with music material: ≥ 107 dB

Self generated noise level in free field at 1 m on axis:
 ≤ 5 dB (A-weighted)

Harmonic distortion at 85 dB SPL at 1 m on axis:
Freq: 50...200 Hz < 3 %
>200 Hz < 0.5 %

Drivers: Bass 105 mm (4 in) cone
Treble 19 mm ($\frac{3}{4}$ in) metal dome
Both drivers are magnetically shielded

Weight: 3.2 kg (7.0 lb)

Dimensions: Height 242 mm ($9\frac{1}{2}$ in)
(including Iso-Pod™ table stand)

Height 230 mm ($9\frac{1}{16}$ in)
(without Iso-Pod™ table stand)

Width 151 mm (6 in)

Depth 142 mm ($5\frac{5}{8}$ in)

CROSSOVER SECTION

Input connector: Input: XLR female, balanced 10 kOhm,
pin 1 gnd, pin 2 +, pin 3 -

Input level for 100 dB SPL output at 1 m:
-6 dBu at volume control max

Sensitivity control range relative to max output:
-12 dB (constantly variable)

Crossover frequency, Bass/Treble: 3.0 kHz

Treble tilt control operating range: 0 to -2 dB at 15 kHz

Desktop 200 Hz control: -4 dB at 200 Hz

Bass roll-off control: -4 dB at 65 Hz

Bass tilt control operating range in -2 dB steps:
0 to -6 dB at 100 Hz

The 'CAL' position is with all tone controls set to 'off' and the input sensitivity control to maximum (fully clockwise).

AMPLIFIER SECTION

Bass amplifier output power: 50 W
Treble amplifier output power: 50 W
Long term output power is limited by driver unit protection circuitry.

Amplifier system distortion at nominal output:
THD ≤ 0.05 %

Mains voltage: 100-240 V AC, 50-60 Hz

Voltage operating range: ± 10 %

Power consumption: Idle 3 W
Standby <0.5 W
Full output 60 W