Alpair 5G

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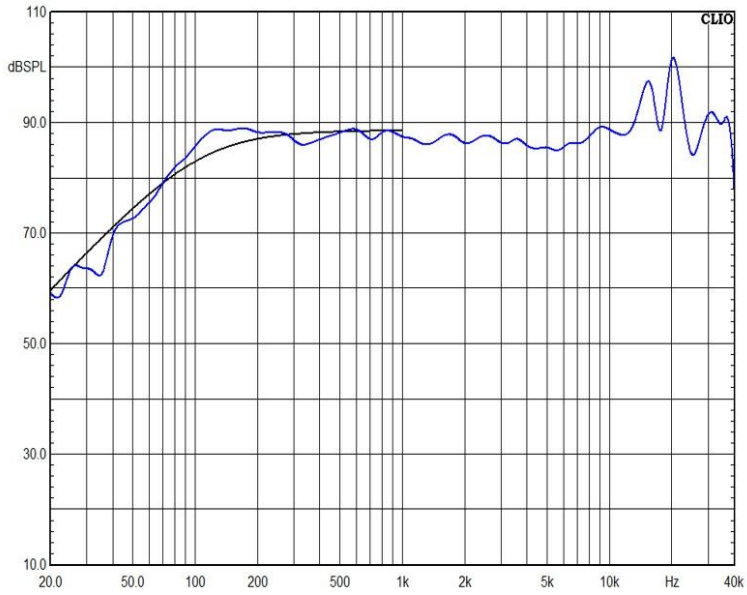
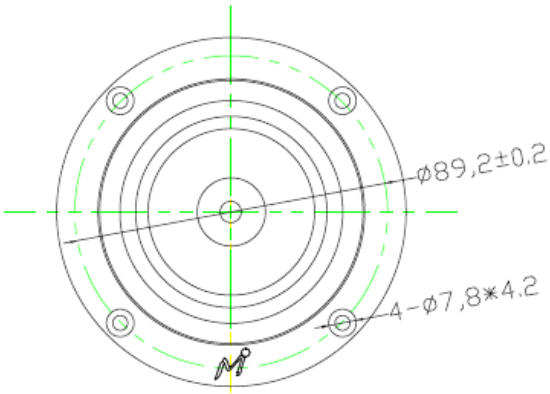
The Alpair 5G marks a Markaudio first in loudspeaker design, introducing a diaphragm made from Ultra Thin Acoustic Glass (UTAG). Developed by **Glass Acoustic Innovations Co., Ltd (GAIT)** using *Dinorex UTG*® by Nippon Electric Glass. This material offers an alternative, intriguing sound and listening experience to metal and paper cone technology. Glass technology delivers a faster sound wave propagation across the cone surface, increasing the transient response.

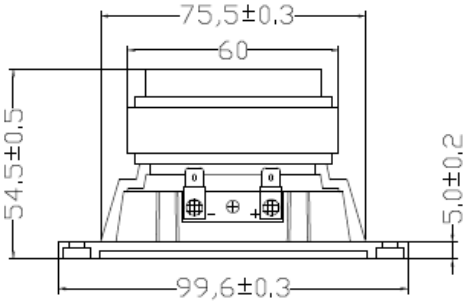
With a near flat response from Fs to 10KHz and extended rising output to a remarkable 40KHz, the Alpair 5G achieves levels of detail rarely found in full-range drivers. Its unique glass diaphragm reduces internal resonance and reverberation while remaining resistant to humidity, temperature fluctuations, and long-term deterioration.

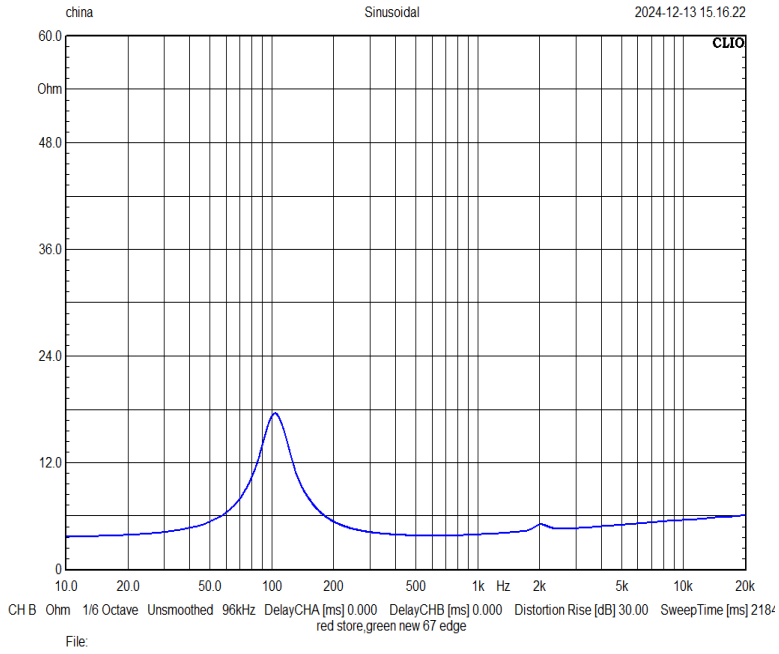
The Alpair 5G integrates a precision engineered suspension system using a mixed grade butyl-based material for low mass and high stability with an advanced, low-distortion motor design with pure copper coil, and a cast aluminum alloy basket to minimize vibration and distortion. These carefully-engineered elements work in harmony with the UTAG diaphragm to produce a driver that is not only lightweight and responsive but also acoustically stable under demanding conditions. The cone and dustcap are provided by **Glass Acoustic Innovations Co. Ltd (GAIT)**, and we extend our thanks to their team for their engineering, development, and manufacturing expertise in pioneering this new material. Their collaboration has been instrumental in realizing the Alpair 5G.
This combination of advanced materials and engineering makes the Alpair 5G a benchmark in full-range loudspeaker innovation.





The frequency response above shows the measured anechoic axial sound pressure level using a standard IEC test baffle. Input 2.83v RMS, microphone distance 0.5m, SPL normalized to 1m value. The grey line is the calculated low-frequency infinite baffle response from the parameters given in this datasheet. Impedance is measured in free space with a 1v input signal.





FS	104.5246 Hz
VAS	1.1680 L
RE	3.4 ohms
QMS	2.7967
QES	0.6805
QTS	0.5473
SPL	88.53dB 1m/2.83v
SD	0.0028 m2
CMS	1.0463 mm/N
MMS	2.2159 g
RMS	0.5204 WM
MMD	2.1308 g
BL	2.6966 Txm
L1kHz	0.0452 mH
L10kHz	0.0311 mH
X Max	3mm (1 way)
PWR	7 Watts (Nom)

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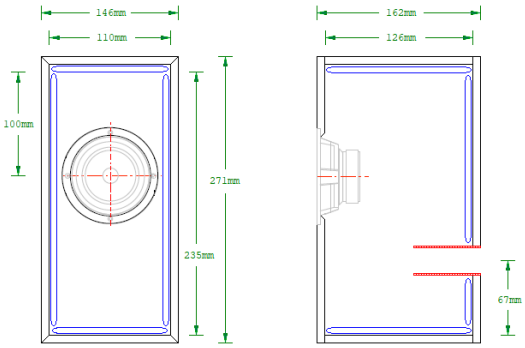


Duct dimension options (untapered cylindrical)
Diameter x length

1/ 20mm x 35mm
2/ 25mm x 59mm
3/ 30mm x 87mm

Note: to maintain tuning do not mix / match vent diameter & lengths

Vented box bookshelf for Markaudio Alpair 5G

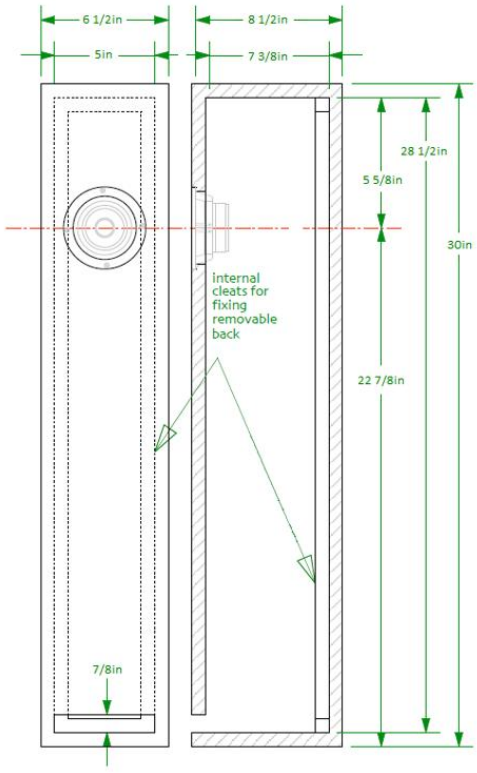
markaudio
New Audio Fidelity

Notes:
0/ Vented box bookshelf for Markaudio Alpair 5G
1/ 18mm build material assumed. Quality grade MDF / HDF acceptable, void-free multiply (Baltic birch, bamboo etc.) recommended
2/ Chamfer driver cutout to reduce reflections & enhance airflow
3/ All internal faces apart from front baffle lagged 12mm - 20mm rigid fibreglass board (3lbs ft^3 rating), recycled denim, soft wool felt, BAF or equivalent. Avoid acoustic foam
4/ Front edges of baffle may be chamfered if desired

Design assumes voltage source amplifier [e.g. typical solid state] & approximately 1/20hm loop resistance from normal speaker wire run & terminal losses

Fb = 80Hz
F3 = 68Hz [nominal anechoic]
F6 = 62Hz [nominal anechoic]

Note: sketch indicative of dimensions & not shown to precise scale



Pensil 5G

for Markaudio Alpair 5G
designed by S. Lindgren
drawn by dld

Not for distribution

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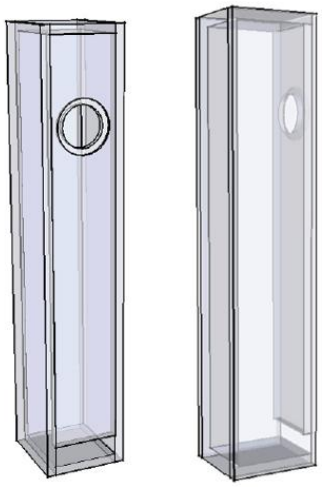

Notes:
0/ drawing uses 3/4" (19.1mm) material. 18-20mm OK. Quality multi-ply recommended
1/ stuff with 0.7 lbs / ft^3 polyfill
2/cleats on back to allow for removable back, useful for adjusting the stuffing
3/ bracing is optional. For bracing ideas plase see the bracing sheet in the superPensil12 plans