

# Technical Briefing

## Elypsis 1512

### Introduction

Although intended as a speaker for use in the home, the Stratton Acoustics Elypsis 1512 is unashamedly inspired by large scale studio monitors of the 1970s and 1980s; the JBL 4350 and Tannoy Buckingham for example. And while, for numerous reasons, the majority of today's studio monitors and domestic hi-fi speakers have little in common with those classic products, they undoubtedly had some attractive qualities: high sensitivity, wide bandwidth, minimal time domain smearing and minimal compression. Through employing contemporary driver technologies, crossover techniques and enclosure construction, and marrying them to bespoke, artisanal design and manufacture, the Elypsis 1512 strives to express those qualities even more effectively.

### Drivers

#### Bass Driver

The Elypsis 1512 incorporates twin 350mm (15 inch) reinforced paper diaphragm drivers each rated at 800 Watts power handling. The driver features a 113mm (4.5 inch) voice-coil, an aluminium demodulation ring and a twin spider suspension system. It is capable of  $\pm 14$ mm linear excursion.

The Elypsis 1512 enclosure provides a 230 Litre internal volume for the bass drivers. Reflex loading is employed via four internally and externally flared ports tuned to 34Hz. Elypsis 1512 low frequency bandwidth extends to -6dB at 28Hz. System group delay remains under 12mS above 40Hz.

#### Midrange Driver

The Elypsis 1512 midrange driver incorporates a 300mm (12 inch) reinforced paper diaphragm with a 75.6 mm (3 inch) voice-coil, a neodymium-iron-boron magnet system and a copper sleeved pole-piece. In the Elypsis 1512 installation, the driver is selectively hand-doped to fine-tune its response characteristics. The driver is mounted in a sealed enclosure filled with a mix of damping materials.

#### Tweeter

The Elypsis 1512 tweeter is a 29mm diameter soft dome device fitted with a CNC machined aluminium waveguide that both defines its dispersion characteristic and provides some increased efficiency through acoustic impedance matching. The tweeter is mounted within the Elypsis 1512 enclosure via a Stratton Acoustics patented decoupling arrangement that ensures its isolation from mechanical vibration. The tweeter features a neodymium-iron-boron magnet system with a double copper capped, T-shaped pole piece and a flow optimised rear enclosure.

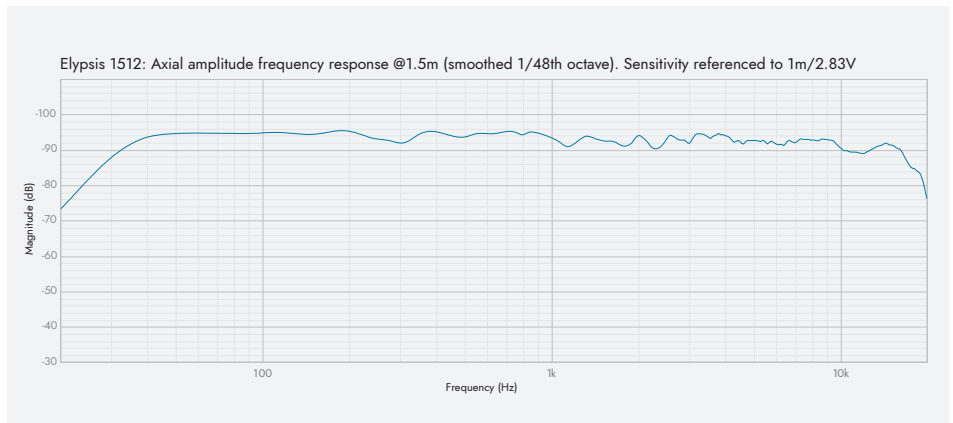
### System Concept

The Elypsis 1512 is a three-way passive speaker built around a driver complement of twin 380mm bass drivers, a single 300mm midrange driver and a mechanically decoupled, 29mm waveguide soft dome tweeter. The drivers are arranged on the enclosure front panel in an asymmetric array, which results in similarly asymmetric horizontal dispersion. Pairs of Elypsis 1512 speakers are built in mirror image format in terms of front panel component arrangement. The phase relationship through the crossover region between the midrange driver and tweeter is engineered to ensure that the off-axis frequency response on the midrange side of the speaker remains linear. As a result, in most installations, a pair of Elypsis 1512 are intended to be arranged such that the tweeters are positioned outermost.



## Crossover and System Characteristics

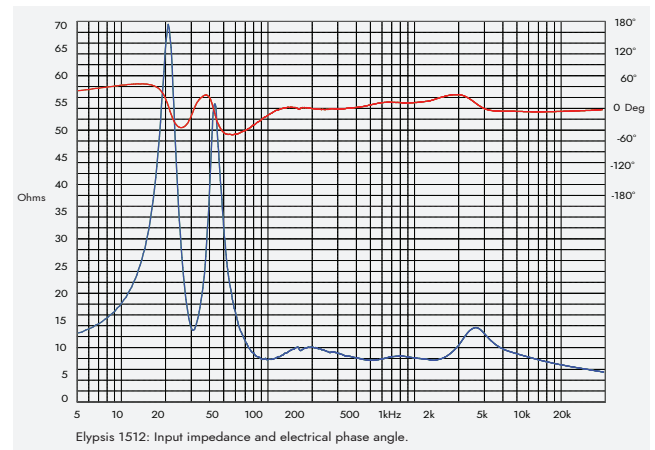
The Elypsis 1512 passive crossover integrates the drivers at 350Hz and 2.5kHz via asymmetric 2nd and 3rd order filter slopes. Targeted impedance compensation is employed to linearise the system impedance and to enable close control of filter slopes. Crossover components are all audiophile grade and comprise predominantly plastic film capacitors and air-cored inductors. EQ options are provided on the midrange and tweeter drivers that offer  $\pm 2\text{dB}$  adjustment.



The system impedance that results from the combination of drivers and crossover remains above  $8\Omega$  between 100Hz and 10kHz. Electrical phase remains within  $\pm 20^\circ$  over the same frequency range. System sensitivity for 2.83V at 1m is between approximately 94dB and 98dB depending on the midrange and tweeter EQ settings. The Elypsis 1512 can be partnered successfully with almost any amplifier – from the least to the most powerful. Levels of odd order harmonic distortion above 100Hz are generally below 0.3% for 90dB at 1m.

## Enclosure

The Elypsis 1512 enclosure is manufactured from a combination of 24mm and 18mm precision CNC routed birch ply panels including a 46mm Front Baffle capped with a solid CNC machined acrylic outer baffle. Complex and comprehensive internal bracing ensures that the construction is effectively inert and the internally divided midrange enclosure volume incorporates non-parallel panels to help suppress internal resonance.



## Elypsis 1512 Specification

System Type	Quad reflex loaded three-way passive speaker
Enclosure	Substantially braced birch ply
Bass Drivers	2 x 380mm (15 inch) with paper diaphragm and ferrite motor
Midrange Driver	300mm (12 inch) with selectively hand doped paper diaphragm and NeFeB motor
Tweeter	29mm (1.2 inch) waveguide loaded NeFeB motor soft dome
Crossover	Part-impedance compensated three-way with asymmetric second and third order slopes
Crossover Frequencies	350Hz and 2.5kHz
Frequency Response	45Hz to 18kHz $\pm 2\text{dB}$
Low Frequency Cut-off	-6dB @ 28Hz
Midband Sensitivity	96dB for 2.83V @ 1m
Nominal Impedance	$8\Omega$ ( $8\Omega$ minimum between 100Hz and 10kHz)
Group Delay	<12mS above 40Hz
Amplifier Compatibility	Any
EQ Options	Mid and HF bands $\pm 2\text{dB}$
Connections	Tri-wire/Tri Amp Neutrik Speakon sockets
Dimensions (H x W D)	876mm (34.5 in) x 1001mm (39.4 in) x 515mm (20.3 in)
Weight	140kg (308.6 lbs)

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