



## DYNAUDIO SPECIAL FORTY

### LOUDSPEAKERS

**D**ynaudio has a tradition of marking momentous occasions in its history by producing special editions of its loudspeakers. Yes, I know many manufacturers do this, but Danish manufacturer Dynaudio has been building speakers for so long that it now has a quite a few 'specials' in its catalogue... and back-catalogue. The 'Special One' closed off the company's first decade in business. The 'Special Twenty-Five' was designed and built in 2002 for Dynaudio's 25th anniversary, and the 'Sapphire' was commissioned for the company's thirtieth anniversary.

So by now you should have guessed that the Special Forty was built to commemorate Dynaudio's 40th anniversary, in 2017.

But is there anything particularly special about this model other than it was built as an anniversary edition and is likely to become a collectable model? I just had to find out...

### THE EQUIPMENT

Fully designed and engineered in Dynaudio Labs, the Special 40 is built right across the road from those laboratories in the company's own factory in Skanderborg. It continues the tradition of high-quality stand-mount designs—not super-compact, being a medium-sized speaker 36cm high and 31cm deep without counting protuberances—but certainly very room-friendly.

And while Dynaudio is currently creating an ongoing series of active and wireless models for the new age of streaming audio, that's not the 'focus' of the Special Forty—this is a firmly traditional passive loudspeaker... no built-in electronics at all—if you don't count the crossover network, that is!

Indeed Dynaudio says its goal here was to revisit the company's 40 years of innovation and bring it all together in the light of everything it has learned since. I liked Dynaudio's description of its Special Forty as *'our greatest hits... re-imagined, remixed, remastered...'*

One key approach has been to deliver a tweeter with an extended response not so much upwards (the -3dB point is quoted at 23kHz) but significantly downwards into the midrange, as low as 1kHz, while the woofer is engineered to extend upwards as far as 4kHz. That creates a natural crossover between the two drivers, while one of the benefits of designing its own drivers is that Dynaudio's tweeter and woofer also deliver as similar tonality and dispersion as the physics of the varying frequencies allow. So Dynaudio's preferred first-order crossover circuit need only apply mild slopes and simple circuitry to achieve the desired impedance and phase alignment. As the company says: *'why manipulate the musical signal to make the drivers gel, when you can make better drivers in the first place?'*

Up top, then, is the Esotar Forty tweeter, currently unique to this model, a 28mm soft-dome diaphragm, the coating of which, applied in variable thicknesses for maximum performance, is described as 'DSR', apparently

a tongue-in-cheek initialisation denoting 'Dynaudio Secret Recipe'. Behind the diaphragm is a new magnet and venting system designed to relieve the dome from back-pressure.

## The thrilling speed of the bass delivery from the Dynaudio Special Forties was immediately evident

Improved damping material is also used to absorb rear radiation, with the result of reduced resonances and improved speed and accuracy. Although this tweeter was designed and built specifically for the Special Forty, its design is based on the Esotar2 tweeter that is used in some other Dynaudio models.

The bass/midrange driver is described by the company as 'the ultimate incarnation of our legendary 17W75 MSP woofer'. In this case the initialisation is not tongue-in-cheek, but used to indicate that the 170-mm diameter cone is made from Dynaudio's exclusive 'magnesium silicate polymer', which benefits from all the stability and strength of attachment of a one-piece design, held in place with the company's 'AirFlow' chassis and with a hybrid neodymium/ferrite magnetic system that's inside, rather than outside, the voice coil.

Not that you'd know from looking at the front baffle, but the Dynaudio Special Forty is a bass reflex design, and the port is rear-firing, located above a small and robust connections panel that houses a solid pair of binding posts good for spades, bananas or bare wire. Each port comes with a bung to allow you to 'tune' the speaker for your personal preference, room size and speaker position. Blocking off the port essentially turns the bass reflex enclosure into a sealed one. You can also 'half-block' the port by removing a central portion of the bung, about which more later.

The speakers loaned for review were finished in a luxurious high-gloss grey birch finish and, as is invariably the case with Dynaudio models, the first thing to impress was the immaculate build quality and finish—the deep gloss of the varnish, and here the way the wide stripes of the birch flow around from the chamfered baffle to the side walls without a hint of a join, and then over the top, so that the baffle and top grains meet at 90 degrees.

The stripes of the veneer vary quite dramatically in colour on the grey version

because these are not age rings, as you might think—they are too straight and uniform, for one thing. Rather multiple layers of birch wood have been coloured and compressed

into blocks before being sliced sideways to produce this striping effect. Heaven knows how it all stays together; I salute the craftspeople who achieved the effect, prior to the piano lacquer being applied.

Although my review models were supplied in grey birch, as I've

noted, another finish is available: a high-gloss red birch. Both are finishes that Dynaudio says it has never used before and are exclusive to this model.

### LISTENING SESSIONS

The thrilling speed of the bass delivery from the Dynaudio Special Forties was immediately evident when spinning David Bowie's 'Let's Dance' LP, a recording only seven years younger than Dynaudio itself.

On *China Girl* there's not a nanosecond of overhang to the Carmine Rojas bass line, and it's tuneful too, with every note of its busy run over the intro and closing defined in tone and shape, solidly underpinning Omar Hakim's spare 80s' beat, and Bowie impeccably imaged and unimpeded by the surrounding flow.

And the dynamics! The Who's 'Tommy' (24/96) came crashing in, the entry of 1921 making me near-jump out of my seat with its entry, so sharp and powerful an impulse did the Dynaudios deliver.

IQ's Mellotron-laden 1312 Overture combined snapping snare and octave-leaping bass over multiple layers of choir and synths can swamp lesser speakers—here everything was swirling and spreading through real space both between the speakers and apparently beyond.

An ability to deliver depth of field was enjoyably revealed in a Philip Glass Ensemble strings piece from the 'Mishimi' soundtrack (1934: Grandmother & Kimitake), also thrillingly rich in tone.

The resulting combination of clarity, detail and control was nicely displayed by Angus & Julia Stone's *Grizzly Bear* and its opening combination of clicky guitar and reverbed Rhodes before the beat and bass kick in.

Open and wide is this Rick Rubin soundscape through the Special Forties: Angus front and real, Julia placed slightly behind in soulful support, then split to ping-pong sides for the delightful 'ba-ba-ba-ba's'.

While enjoyable at lower volume levels, these speakers beg to be turned up, and of course benefit from decent amplification to fully open the available dynamics and slam, and to deliver that bass to its full effect. Their claimed sensitivity is only average at 86dB/W/m (but see our test report on the following pages), while they're given a nominal



impedance of 6Ω (confirmed during testing), so they don't need an absolute beast of an amplifier to drive them, though you should invest in adequate power to have them deliver their best; the large reserves of a Classé integrated amp in this case bringing them thrillingly on song.

I also experimented with different speaker positions, and clarity was certainly highest with the speakers in a good amount of free space, some metre or more out from any walls on stands that put their tweeters at my seated ear height. If you need them further back, there's some bass tuning available from those foam bungs I mentioned that are supplied for the bass ports—either full bunged or with centres removed to tame any rear reflections that might muddy rather than support their balance. I just kept them out in free space, toed-in, their sound easily filling a medium or even medium-to-large space, although these are speakers with such brilliance of imaging and dynamics that they are best appreciated in reasonably close proximity, where they can fully weave their magic.

## CONCLUSION

Dynaudio has been sensible to finish these speakers so strikingly in sliced birch, as the unusual finish draws attention to their similarly high level of design and performance. The Special Forty is an exceptional standmount worthy of its anniversary status, with dynamics, tone and imaging highest on their long list of strengths. Put them into a high-quality system, and hear how they sing. *—Jez Ford*

### CONTACT DETAILS

**Brand:** Dynaudio  
**Model:** Special Forty  
**RRP:** \$4,499 per pair  
**Warranty:** Five Years  
**Distributor:** BusiSoft AV Pty Ltd  
**Address:** 158 Christmas Street  
 Fairfield VIC 3078  
**TF:** 1300 888 602  
**T2:** (03) 9810 2900  
**E:** info@busisoft.com.au  
**W:** www.busisoft.com.au

- Highly musical
- Thrilling imaging and staging
- Immaculate finish
- Not bi-wireable
- Two finishes only
- Best with high-quality power

Readers interested in a full technical appraisal of the performance of the Dynaudio Special Forty Loudspeakers should continue on and read the LABORATORY REPORT published on the following pages. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.



## LABORATORY TEST REPORT

*Newport Test Labs* measured the frequency response of the Dynaudio Special Forty as extending from 45Hz to 20kHz ±3dB. This is the response shown in Graph 1. The section of the trace below 2kHz is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter using pink noise test stimulus and with the capture unsmoothed other than by the averaging process itself. This trace has been manually spliced (at 2kHz) via post-processing to the gated high-frequency response, an expanded view of which is shown in Graph 2. You can see that the response is not only spectrally balanced (no tilts or skews in any direction), but across the midrange it is particularly flat, essentially extending from 90Hz to 14kHz ±1.25dB.

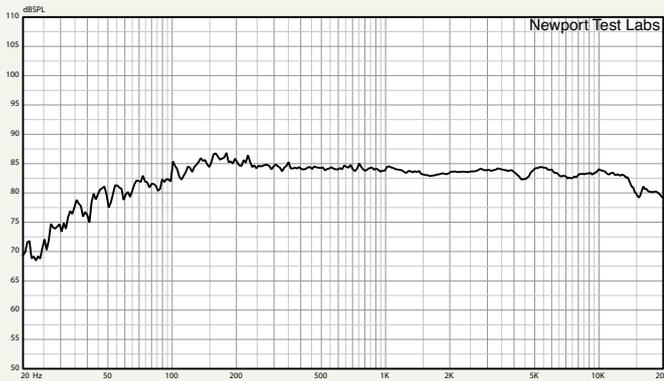
Graph 2 not only shows the high-frequency performance of the Dynaudio Special Forty in greater detail, it also shows the difference in the frequency response depending on whether you're listening with the grille on (black trace) or the grille off (red trace).

You can immediately see that the high-frequency response is flatter without the grille than with it fitted. When the grille is in place, there's a peak in the response at 4kHz, then small suck-outs at 3.2kHz and 6.5kHz. Up at 15kHz, where there's already a little suck-out in the tweeter's response, the presence of the grille makes it a little deeper.

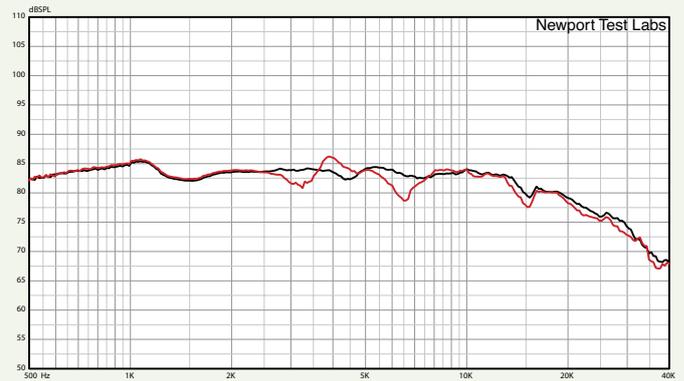
In Graph 3 *Newport Test Labs* has measured the near-field low frequency response of the bass/midrange driver when the port is open (bass-reflex tuning, shown by the black trace) and when the port is blocked off (infinite baffle tuning; green trace). The output of the port itself is shown by the red trace. (All near-field acquisitions.) You can see that no matter what tuning you use, the output of the bass/midrange driver starts rolling off below about 125Hz. As theory predicts, it rolls off smoothly but only gradually at around 12dB per octave when the port is blocked, but rather more rapidly (24dB per octave) when the port is open, though in this case the output of the port compensates for the lack of output from the driver. You can see the port's output peak at 47Hz does not quite correspond with the driver's minima at 50Hz, presumably the result of some small compromise to get the cabinet to work well with the triple tuning possibilities (open, plugged, half-plugged).

The different tunings are also evident on the measurement of the Dynaudio Special Forty's impedance, which is shown in Graph 4. The red trace shows the classic bass reflex 'double hump' with the saddle at exactly 50Hz. The resonant peaks are at 34Hz and 80Hz, and both only a tad above 30Ω. When the port is closed, there's just a single resonant peak at 70Hz that tops out at 39Ω. The impedance drops below 5Ω at 20Hz and between 150Hz and 220Hz, but is otherwise mostly above 7Ω. However those excursions below 5Ω mean that the Dynaudio Special Forty should be classified as a nominally 6Ω design... which is exactly what Dynaudio has done. The impedance at very high frequencies is heading downwards. An upwards tilt would have been preferable, but since the impedance is still a high-ish 6.5Ω at 40kHz, it's unlikely to bother any well-designed amplifier. The phase angle (blue trace) is well-controlled.

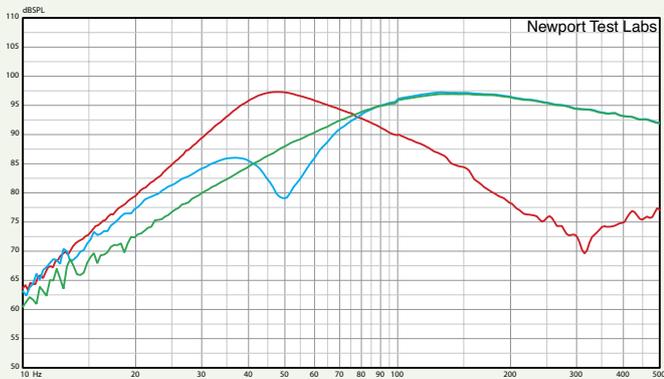
The composite graph (Graph 6) superimposes the various measurements and extends the measurement range for two of them, so here you can see that the tweeter keeps on rolling off above 20kHz and has a tiny resonance at 26kHz, and that the port has a fairly large resonance at 700Hz. I doubt this would be audible, but in the case of the Dynaudio Special Forty you could check for yourself by placing the speakers side by side, blocking the



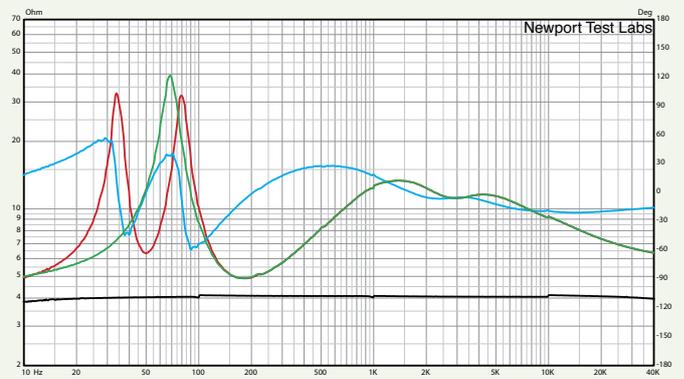
**Graph 1.** Frequency response. Trace below 2kHz is the averaged result of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter using pink noise test stimulus with capture unsmoothed. This has been manually spliced (at 2kHz) to the gated high-frequency response, an expanded view of which is shown in Graph 2.



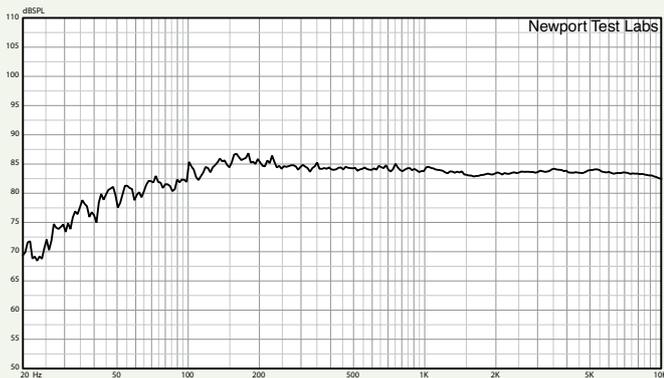
**Graph 2.** High-frequency response, expanded view showing response without grille fitted (black trace) and with grille in place (red trace). Test stimulus gated sine. Microphone placed at three metres on-axis with dome tweeter. Lower measurement limit 500Hz.



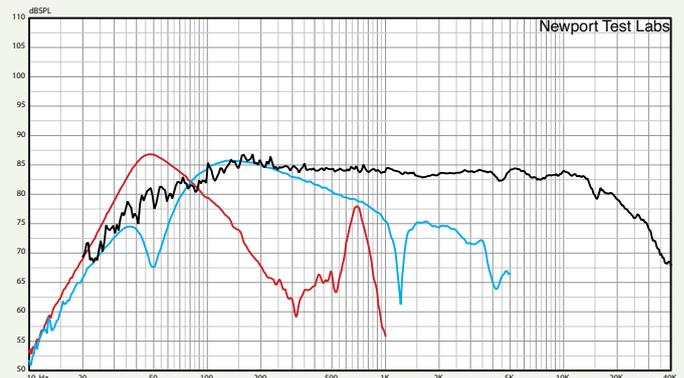
**Graph 3.** Low frequency response of front-firing bass reflex port (red trace) and woofer when port is open (blue trace) and when port is closed (green trace). Near-field acquisition. Port/woofer levels not compensated for differences in radiating areas.



**Graph 4.** Impedance modulus of Dynaudio Special 40 loudspeaker with port open (red trace) and closed (green trace) plus phase (blue trace) with port open. Black trace under is reference 4 ohm precision calibration resistor.



**Graph 5.** Averaged frequency response using pink noise test stimulus with capture unsmoothed. Trace is the averaged results of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter. Upper measurement limited at 10kHz.



**Graph 6.** Composite response plot. Red trace is output of bass reflex port. Light blue trace is anechoic response of bass driver. Black trace is frequency response from Graph 1.

port of only one of them, and then feeding both speakers the same monophonic signal with content at this frequency. If you *can* hear a difference, choose the tuning with the sound you most like.

Dynaudio specifies the Special Forty has having a sensitivity of 86dB SPL but does not state all its measurement criteria. *Newport Test Labs* reported its test sample of the Special

Forty as having a sensitivity of 83.5dB SPL at one metre for a 2.83Veq input, when using pink noise as the stimulus. This correlated quite nicely with a measurement of the Special Forty made by Canada's *National Acoustic Laboratory*, which reported it as being 83.5dB SPL (averaged 300Hz to 3kHz, re 2.83V/1m). It also correlates with about what I'd expect from a loudspeaker of the Special Forty's size

and frequency response. It's low enough that you should try to use a more powerful amplifier than you might otherwise have considered, but I'd imagine 100-watts per channel would be more than sufficient.

Overall, the Dynaudio Special Forty returned exemplary performance in *Newport Test Labs'* suite of acoustic and electrical measurements. *Steve Holding*