australian
hi-fi
and home theatre technology

REVIEWED

Energy
ESW-M8 Sub

Swans
F2.2+ Speakers

Musical Fidelity
M3i Amp

Rotel
RCD-1520 CD Player

Magnat
Quantum 607 Speakers

I'M SHOCKED!
Are you sure your hi-fi system is electrically safe?

NATIONAL AUDIO SHOW REPORT
Few manufacturers turned up, but the show was better for it!

Nov/Dec 2010 $7.95 nextmedia
9 771442 125002 06

SWANS F2.2+

Loudspeakers

How the world has changed. Not that long ago, the global loudspeaker industry was entirely dominated by western companies; the large UK and US manufacturers and, to a lesser extent, some stalwarts from Germany, Italy and France. Up until the last two or three decades these companies engineered and manufactured products in their respective countries of origin exclusively. But the high cost of Western-based labour and, at the polar end, the low cost of the work force in China and Taiwan instigated a reinvention of the audio manufacturing landscape; to the point that now almost all loudspeakers—barring a few ultra-high-end brands—have at least their cabinets made in Asia, if not the whole speaker lock-stock-and-barrel. So as much as the 'Made in China/Taiwan' label was once used to denigrate (by declining Western-based competitors most of whom have now succumbed to economic realities) it can now be displayed with deserved pride. There is no doubt that products made in China or Taiwan can be of world class quality.

In the latter part of the 20th century some very interesting Chinese- and Taiwanese-branded products began to make a strong impression of their own. Albeit *initially* with substantial Western design input, the emerging Asian products were impeccable in terms of fit and finish, represented outstanding value, and most importantly, put out the challenge to the big boys in terms of sound quality. In the loudspeaker category—there are far more Asian-based electronics manufacturers, especially of the valve amplification persuasion—the first to break through internationally, in terms of universal critical recognition, was Usher Audio (with input from design guru Joseph D'Appolito) closely followed by Swans Speaker Systems (with input from founder Frank Hale).

Swans Speaker Systems, as it now stands, is the result of a merger between Frank Hale's original speaker manufacturing company and China's HiVi, one of the world's largest manufacturers of high-quality drivers. The new entity is a rather large concern with corporate offices in California and manufacturing facilities in China. The company also boasts of having one of the world's largest anechoic chambers. The serious capital commitment in terms of the multiple factories and extensive product ranges makes for an important world player in an industry that is increasingly looking at Asia Pacific as its manufacturing base.

THE WING SPAN OF A SWAN

Swans Speaker Systems offers an extensive product range that covers entry-level to high-end stereo, home theatre, multimedia desktop and even professional audio. The F2.2+ speaker is the smallest speaker in the 'Ultimate' range, which is Swans' statement product line.

The three-way/four-driver F2.2+s are large floorstanders featuring three stacked enclosures per side, in a stunning seven-coat piano gloss finish over a reddish Rosewood-like timber. At its base the F2.2+ sits on a nicely-shaped black gloss plinth, then the lower enclosure simply sits atop the plinth (on four rubber-ended feet). This lower enclosure houses the first of the speaker's two D8 203mm-diameter drivers which sit on gloss black baffles and feature oversized 100mm voice coils. The next enclosure again simply stacks on top of the first, and this middle box houses a P5 127mm diameter midrange driver below a RT1.3 isodynamic planar magnetic tweeter. Lastly, the top enclosure again just stacks on top of the first two and is home to the second D8 bass driver. The D8 bass drivers (made by HiVi, of course) bear more than a passing resemblance to Dynaudio's bass drivers.

Each enclosure is then connected via high-quality cables (supplied) that are the exact length required and terminated via lockable banana plugs. The speakers' binding posts appear to be of good quality, although our review unit sported a free-spinning loose post—I've heard reports of this issue from overseas users and reviewers who've struck this in products using the

same brand of binding post. This connecting arrangement works very well but I'd suggest Swans could instead simplify the set-up by using Speakon connectors instead of using twin (and more expensive) lockable bananas. Two additional lengths of speaker cable (approx 2.5 metres long) are supplied to facilitate connecting the speakers to your amplifier of choice. It must be mentioned here that the speaker cable was unusually heavy, hinting at the use of thick copper conductors (a good thing).

Swans' specifications quote a frequency response of 36Hz to 20kHz with no given dB limitations, a nominal impedance of 4Ω and a sensitivity of 88dBSPL (2.83V/m).

The stacked configuration results in a speaker of considerable weight and size—so once assembled, each stack weighs close to 65kg and stands 1.5 metres high. Both upper and lower bass enclosures are ported via a large diameter port with radiused outer edges so as to avoid chuffing. The middle enclosure is sealed. Overall the speaker is beautifully assembled and finished and the three enclosures integrate perfectly; each one tapers and curves around towards the rear in perfect visual unison. Once they're stacked, you really can't tell that you're not looking at just a single pair of speakers, rather than two 'stacks', each one comprised of three separate cabinets.

> *I thought the F2.2+s rocked!*

SWAN FLIGHT

I had several amplifiers at hand to use when I was listening to the F2.2+s. One was a high-power solid-state linear design, the next an equally high-powered Class-D design and, lastly a very solidly-built valve design. With a helping hand, the F2.2+s can be unpacked (from the no-fewer than eight shipping boxes), Lego-land stacked and hooked-up within an hour.

The F2.2+s have been voiced to be very smooth operators. CDs I know to be rather compressed and bright are tempered down in the region of the upper mids and lower highs where the impression of 'shoutiness' and brightness takes place. This slight recess in the presence band actually tends to extend the facsimile of a deep stage. Given the appropriate recording, such as *Sera Una Noche*, musical information will seem to stretch cavernously deep. Laterally, the presentation is just as generous. Sonic images within the soundstage are reasonably well positioned… if not focused scalpel-like, a trait that is the *forté* of speakers with narrower front baffles and a slightly more forward presentation. Which is correct? I'd say it's the one that you personally prefer.

Long listening sessions are a delight with these speakers. It can't be said that I experienced any form of listening fatigue, no matter how long the audition. The tweeter, in particular, is beautifully detailed, competently-resolving and a very refined transducer indeed.

However further investigations with varied music genres exposed a bit of an Achilles' Heel… and perhaps revealed the very reason why I found these speakers to be such mellow players. When playing jazz tracks where the bassist was playing double-bass, or music for chamber ensemble where the cello was close-miked, I perceived the F2.2+s to be a tad bass heavy—even after I'd tried several different positions for the speakers, one of which had them well out into my listening room. This balance, tilted towards the bottom as it was, somewhat overshadowed the midrange, causing not so much a lack of detail as much as a laid-back nature to that frequency range.

This balance paid dividends when listening to orchestral works where the sense of scale seemed enormous. Tympani and other large percussion instruments, or indeed the cello section in this context, had a warmth and fullness that was very appealing. It was only when playing more intimate recordings that I felt the bass overpowered the music a little. Changing amplifiers helped somewhat (especially with a well-regarded Class-D amp noted for its extremely high damping factor) with the F2.2+s releasing a little more energy in the midrange and exhibiting better-controlled bass. I'd say that with the F2.2+, a powerful solid-state amplifier with a well-engineered power supply—or a high-quality Class-D amplifier design—would be *de rigueur.*

Having said all that, I thought the F2.2+s rocked! Their laid-back mids took the edge off modern compressed recordings and their bass-rich balance put a whack on Flea's bass antics or Danny Carey's kick and tom fireworks (possibly rock's best drummer from Tool). A Perfect Circle's *The Noose* (from Thirteenth Step) starts with a distant drum beat that has purposely been muffled and which rides behind Maynard Keenan's main vocals.

SWANS F2.2+
Loudspeakers

Brand: Swans
Model: F2.2+
Category: Floorstanding Loudspeakers
RRP: $12,000
Warranty: Ten Years
Distributor: Oceanic Distribution
Address: Unit 19, 22 Northumberland Road Caringbah NSW 2229
T: 1300 556 303
T: (02) 9531 1336
F: (02) 9531 2113
E: sales@oceanicdistribution.com
W: www.oceanicdistribution.com

- Smooth tonality throughout crucial mids and tops
- Gorgeous build and fit 'n' finish
- High-quality cables included
- Ten year warranty

- Bass heavy balance

The F2.2+s placed the backing drum in a distant place, 'way to the rear. But when the track transmutates and the crystalline snare and depth-charge bass line come in, the F2.2+s deliver an undiminished onslaught that approaches that of my reference speakers (which are four times the price Swans is asking for the F2.2+s). And the track's demanding cymbal-work is beautifully replayed via the superb tweeter (also made by HiVi), from the delicate moments at the start where it shimmers and decays to the brutality of the climax where it extends into the room with detail and impact.

SWAN SONG

The Swans F2.2+ speakers represent outstanding value. It's a construct based on multiple enclosures, finished to a superb standard, and features high-quality drivers made by the company itself—as is the stunning cabinetry. The level of proprietary engineering and component control assures a product that has been optimised from the ground up. Make welcome another world player. ***Edgar Kramer***

Readers interested in a full technical appraisal of the performance of the Swans F2.2+ 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.

TEST RESULTS

The frequency response of the Swans F2.2+ design was excellent, as you can see from *Graph 1*, which shows the speaker's response to a wideband pink noise stimulus. The smoothed response extends from 20Hz to 20kHz ±3.5dB. As is obvious from the traces on the graph, most of this variation comes about because of increased low-frequency output between about 25Hz and 200Hz, where the level is about 4dB higher than the midrange mean. Across the greater part of the audio spectrum the response is far flatter than the overall response tabulation suggests, for example: 200Hz to 15kHz ±1dB. So my impression is that the sound from the Swans F2.2+ would be very balanced, but with some forwardness below 100Hz.

Performance with the grille on versus it with the grille off is shown in *Graph 2*, and you can see that the Swans grille is almost completely acoustically transparent—the theoretical ideal. There are some small variations (the largest of which occur at 2kHz and 3.8kHz) but I do not believe these would be audible, even in the closest listening sessions. The measurement technique used to obtain this graph allows finer frequency and level resolution than the one used to produce *Graph 1*, which means we can see that although the high-frequency response is still very flat (1–30kHz+5dB) despite this more-revealing measurement, there is a peak at 5.2kHz, then a dip at around 8kHz, followed by another peak at 13kHz, dipping to 18kHz, after which there's a gradual rise to a peak at 28kHz. These peaks and dips are so high in frequency and so narrow in bandwidth (the lowest of the peaks is far higher in frequency than the highest note that can be played on any musical instrument) that the ear could not perceive them as variations in level: the 'smoothed' trace in *Graph 1* is how the ear would perceive the high-frequency response. What *is* notable is the wonderful high-frequency extension of the F2.2+'s tweeter, which is still pumping 'way up at 30kHz!

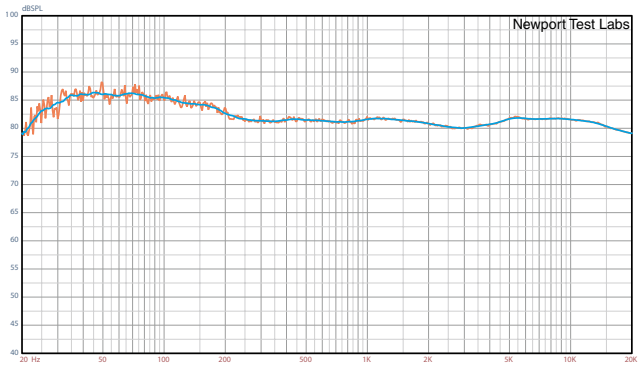
Low-frequency performance is shown in *Graph 3*, and you can see instantly where all the low bass is coming from, because the bass reflex port's output peaks at 32Hz and is just 6dB down at 23Hz and 60Hz. Interestingly, the port's peak output does not coincide with the woofer's 'null-point' at around 38Hz nor with the system resonance at 35Hz, so Swans is obviously doing something different with its cabinet tuning. This

particular tuning appears to have created minor anomalies in the woofer's response at around 30Hz and 65Hz, but otherwise the woofer's frequency response is excellent: It's exceptionally flat between 55Hz and 200Hz, which is where you want it to be flat. The port produces a little unwanted output at 600Hz, but it's not enough to affect the overall sound of the speaker.

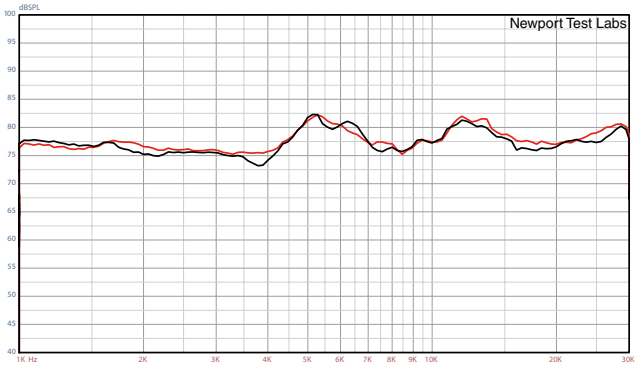
Impedance is well-controlled and mostly stays above 5Ω. It dips briefly below 4Ω (between 80Hz and 150Hz) and is slightly complicated by a phase angle of –60° at 70Hz, but any well-designed amplifier should have no problems handling these small diversions. The shape of the impedance curve leads me to believe that Swans' engineers have included some frequency and/impedance compensation components, presumably to linearise the frequency response, but this is fairly standard practise in high-end designs. There is some evidence of a very minor cabinet resonance at 400Hz, but otherwise the trace looks exemplary.

Graph 5 is a composite graph that simply 'links' the measurements shown in *Graphs 1* through *3* together on the same graph, and adds in an extra trace (light blue) showing the frequency response of the midrange driver. You can see how the various drivers fit with each other and also how they interact with each other. Those anomalies I noted on the bass drivers' response at 30Hz and 65Hz, for example, are also evident on the midrange driver's response and even on the pink noise response.

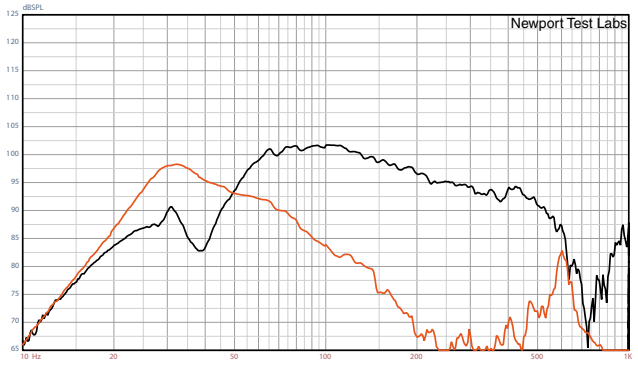
System efficiency was slightly higher than claimed, with *Newport Test Labs* measuring an output of 89dBSPL at one metre, under its standard, very stringent test conditions. ***Steve Holding***



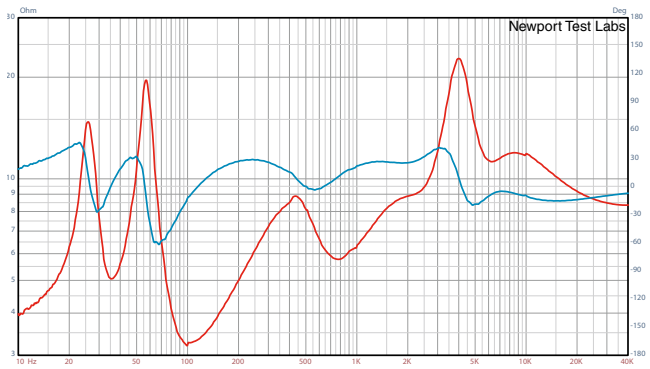
Graph 1. Averaged frequency response using pink noise test stimulus with capture unsmoothed (red trace) and smoothed to one-third octave (blue trace). Both traces are the averaged results of nine individual frequency sweeps measured at three metres, with the central grid point on-axis with the tweeter. [Swans F2.2 Loudspeaker]



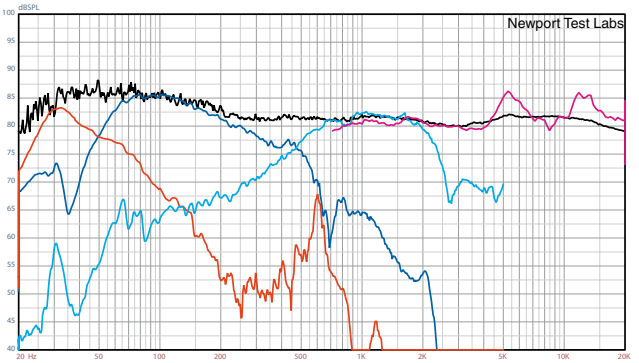
Graph 2. High-frequency response, expanded view, with grille on (red trace) and grille off (black trace). Test stimulus gated sine. Microphone placed at three metres on-axis with dome tweeter. Lower measurement limit 1kHz. [Swans F2.2 Loudspeaker]



Graph 3. Low frequency response of bass reflex port (red trace) and woofer (black). Nearfield acquisition. Port/woofer levels not compensated for differences in radiating areas. [Swans F2.2]



Graph 4. Impedance modulus (red trace) plus phase (blue trace). [Swans F2.2 Loudspeaker]



Graph 5. Composite response plot. Red trace is output of bass reflex port. Dark blue trace is anechoic response of bass driver. Light blue trace is sine response of midrange driver. Pink trace is gated (simulated anechoic) response above 700Hz. Black trace is averaged in-room pink noise response (from Graph 1). [Swans F2.2 Loudspeaker]