

# Studiospares Classic SN10

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It would seem reasonable to assume that everyone reading this review is familiar with the Yamaha NS-10.

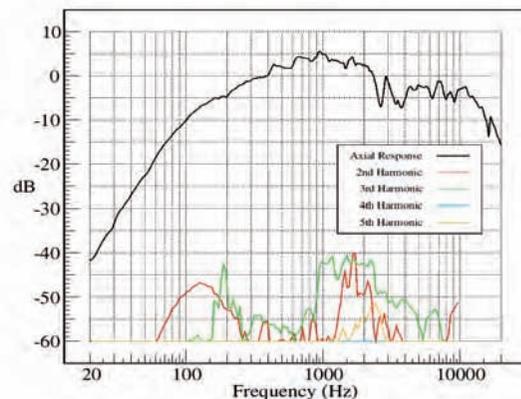
That speaker is no longer manufactured, but Studiospares has produced what it considers to be a replacement in the, rather cheekily-named, Classic SN10. It is inevitable therefore that this review will feature some comparisons between the old and the new. At first glance you may be fooled into thinking that you are looking at the Yamaha, but closer inspection reveals that the SN10 has an 8-inch white-paper-coned woofer instead of the 6.5-inch one found in the Yamaha. This woofer is partnered with a 1-inch soft dome tweeter that is offset to provide left- and right-handed (mirrored) speaker pairs. The speaker is passive with a claimed power handling of 80W and a crossover frequency of 3.5kHz. The sealed cabinet is slightly larger than that of the Yamaha with overall dimensions of 250mm high by 420mm wide by 200mm deep. The logo printed on the front panels suggests that these speakers are intended to be used in the 'landscape' orientation, with the tweeters alongside the woofers, but this may be hidden with the supplied grilles if 'portrait' orientation is preferred.



Figure 1 shows the on-axis frequency response and harmonic distortion performance for the SN10. What is immediately apparent

from this plot is that the frequency response is far from flat, only staying within  $\pm 6$ dB from 150Hz to 14kHz. It should be noted that this 'up-turned V' shaped frequency response is considered desirable in some quarters for nearfield, meterbridge-mounted applications, and it has even been suggested that this is one reason for the popularity of the old Yamaha NS-10, but the response of the SN10 is clearly a greatly exaggerated version of that shape.

Despite having a larger woofer, the low-frequency extension of this speaker is not as good as that of the Yamaha, with a similar 2nd-order roll-off but -10dB occurring at around 120Hz (compared to an 'average' mid-band response level); this is almost an octave higher than that of the NS-10. The rapid roll-off of the high frequencies above 12kHz is also noted as is the unevenness of the response from 2kHz to 4kHz. On the other hand, the harmonic distortion performance of the SN10 is very good, with levels of all harmonics staying below -40dB (1%) throughout the entire frequency range (measured at



**Fig. 1. On-axis frequency response and harmonic distortion.**

90dB SPL at 1m).

The off-axis response of the SN10, shown in Figures 2 and 3, is well controlled with a wide, largely frequency-independent dispersion. There is some evidence of an interference notch at the crossover frequency but this is in common with nearly all two-way speakers.

The time-domain response of this speaker is demonstrated in Figures 4 to 7 which show the step response, acoustic source position, power cepstrum and waterfall response respectively. The step response shows a rapid rise, indicating that there is good time-alignment between the woofer and the tweeter, but the decay is also rapid largely due to the reduced low-frequency output. One of the benefits of using a sealed cabinet, as opposed to a ported design, is evident in the acoustic source position. The low-frequencies are seen to radiate from a position about 1.2m behind the mid- and high-frequencies,

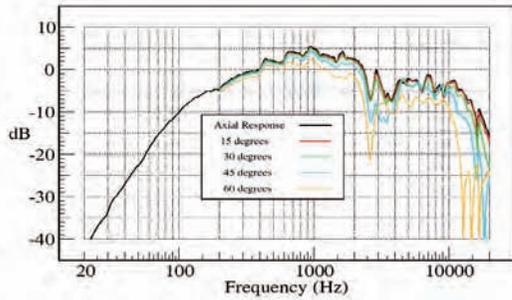


Fig. 2. Horizontal off-axis response.

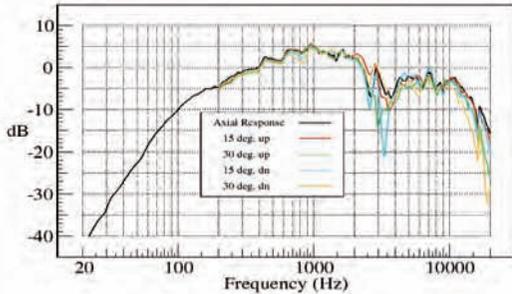


Fig. 3. Vertical off-axis response.

and this can be compared to some designs that can be as much as 4m, albeit with much greater low-frequency extension. The frequency response problems discussed above have 'swamped' the power cepstrum, despite the low-frequency roll-off having been equalised prior to its calculation, but evidence of distinct echoes can still be seen after 200, 500 and 750 microseconds. The waterfall response shows that the low-frequencies decay very rapidly, although this is exaggerated by the high roll-off frequency, and

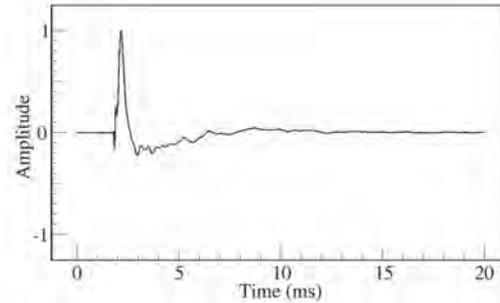


Fig. 4. Step response.

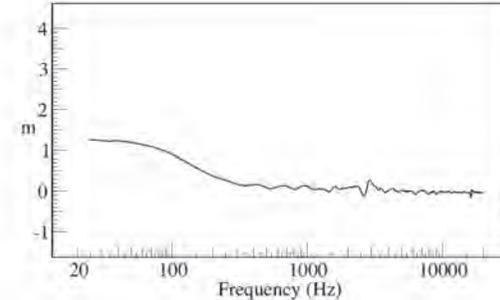


Fig. 5. Acoustic source position.

there is some evidence of resonances at 200, 300 and 500Hz.

The Classic SN10 is a mixed bag. Looking at the frequency response, it is clear that this speaker will sound very different to the many other speakers that are designed with a nominally flat response, with a very obvious lack of bass and treble. On the plus side, the low harmonic distortion and good transient response should ensure a clean, detailed sound. The inevitable comparison with the old Yamaha NS-10

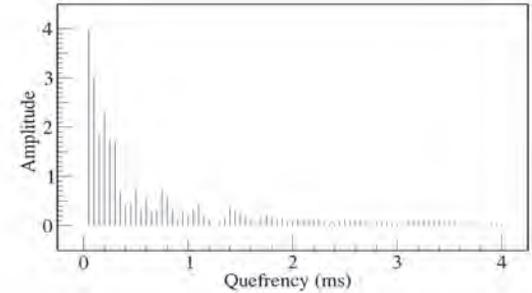


Fig. 6. Power cepstrum.

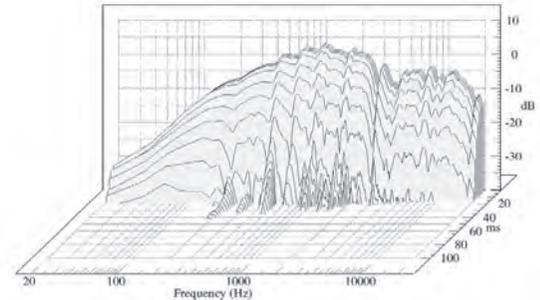


Fig. 7. Waterfall plot.

tells another story though. This speaker appears to be very much an exaggerated version of the Yamaha; Studiospares has taken the desirable properties of the old speaker and made sure that this speaker has them in abundance, perhaps though, at the expense of overall performance. ■

#### Contact

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