

PHIL WARD

With four monitors previously reviewed within these pages, Polish monitor manufacturers APS are no strangers to *Sound On Sound*. The last APS review, of the Germano Aeon 2 model, was in fact by yours truly and I found that an informative and eminently capable, if slightly quirky, monitor. For this review we're heading down the APS product range to its entry-level monitor, the two-way, active, Klasik 2020; a revised version of the original Klasik that was reviewed in the magazine back in 2016.

'Re-engineered' might be a more appropriate term, however, because really quite a lot appears to have changed. The cabinet, for a start, is significantly larger, with around 28 percent more internal volume, which will

APS Klasik 2020

Active Nearfield Monitor

The revised Klasik from Polish company APS offers exceptional performance at a remarkably low price.

mean the Klasik 2020's low-frequency characteristic will likely be fundamentally different. And both the bass/mid and tweeter amplifier power ratings have increased from 75 to 100 Watts. Another significant change is that the Klasik 2020 has moved from its predecessor's conventional, rear-ported reflex loading to a more sophisticated arrangement with somewhat mysterious-looking vent slots engineered into the rear amplifier and connection panel.

In contrast to the numerous DSP-equipped monitors available in these enlightened, hi-tech days, the Klasik 2020 is entirely analogue in its signal path. Even the amplification, rather than employing the increasingly popular Class-D switching technology, is of a traditional Class-A/B configuration. APS employ an amplifier technology based on field effect transistors that they claim offer particularly low noise and distortion.

Being analogue throughout, the Klasik 2020 offers only balanced XLR and unbalanced phono inputs. The inputs are accompanied by a stepped sensitivity control offering -10 to 0 dB adjustment. That's a usefully wide range and I can't imagine there'll be too many monitoring installations in which the appropriate input sensitivity isn't available. Three small slide switches are also present on the Klasik 2020 rear panel. The first offers +1.5dB, 0dB and -1.5dB of tweeter level adjustment, the second offers three options of low-frequency bandwidth extension, and the last offers a ground-lift option. I'm always a little suspicious of using ground-lift options. It seems to me that having to engage the ground lift is life's way of telling you that you really ought to fix whatever is responsible for the ground loop.

As with the amplification, so with the cabinet. The Klasik 2020 cabinet is completely conventional, plain even,



APS Klasik 2020 £950

PROS

- Fabulous wide-band detail and mix element presentation.
- Tuneful and quick closed-box-like bass.
- Natural, uncoloured voice band.
- Seductive, informative stereo imaging.

CONS

- None.

SUMMARY

It's not often that I'm genuinely sorry to wave goodbye to a review sample, but I was with the Klasik 2020. As an inexpensive nearfield mix tool, it currently has few rivals.

in appearance and sports a 'black ash' plastic laminate look that could easily have been designed 40 or more years ago. If contemporary industrial design sparkle floats your boat then the Klasik 2020 is probably going to leave you beached. It may not be a 'looker', but the Klasik 2020 enclosure feels solid and its side panels respond with a reassuringly non-resonant thud to the knuckle-rap test.

Perhaps the most immediately interesting feature of the Klasik 2020 enclosure is the rear-panel reflex port vents I mentioned earlier. I've used 'vents' in the plural because two appear to be fitted. A closer look, however, reveals that there is just one; a bridge piece comprising part of the connection panel appears to divide a single vent in two. As to where the vent (or vents) lead internally and how they are configured, that remains a mystery. Perhaps a touch of FuzzMeasure investigation later will reveal something...

The Baffle

Moving around to the Klasik 2020 front panel, the two drivers are arranged traditionally, with the tweeter located above the mid/bass driver. Beneath the bass/mid driver, the APS badge incorporates an LED indicator that illuminates a particularly cool blue during normal operation and red to indicate amplifier clipping. (I never saw the red so I don't know if it's as cool as the blue.) Back to the drivers, the tweeter appears to be the same driver used in the original Klasik. It's a driver from SEAS of Norway and is a 19mm-diameter aluminium dome with a ferro-fluid cooled and damped voice coil.

The bass/mid driver is of unknown origin and appears to be a relatively conventional 'paper' diaphragm unit with a generous rubber-roll surround that ought to endow it with healthy maximum linear displacement and good damping of diaphragm break-up. Relatively unusually these days, the driver appears to have a pressed-steel, rather than an aluminium die-cast, chassis. A steel chassis is typically seen as a cost-saving measure, however APS's marketing literature on the Klasik 2020 describes some other features of the driver that, because they're not inexpensive to implement, tend only to be found on more ambitious drivers. These features,

which APS collectively call 'Mirror Drive', comprise demodulation rings and 'optimal pole geometry', which are perhaps best explained with a couple of generic illustrations of these kinds of techniques. The exact details of APS's Mirror Drive system are unknown, but they're very likely to be something along the lines of Diagram 1. The illustration on the left shows a section through an entirely conventional magnet system comprising a ceramic ring magnet with simple top plate, bottom plate and pole-piece components. The illustration on the right shows a magnet system that has both an undercut pole piece and incorporates an aluminium demodulation ring around the pole-piece. The undercut pole-piece serves to improve the symmetry of the magnetic flux that spills above and below the plane of the top plate. This small change reduces distortion as it results in the voice coil moving through a more symmetrical magnetic field.

The function of the demodulation ring is more complex but I'll do my best to explain.

Demodulation rings are typically made from either copper or aluminium: materials that simultaneously display low magnetic permeability but high electrical conductivity. Their role is to suppress eddy currents in the magnet system pole-piece. Eddy currents arise through the movement of the voice coil around the (electrically conductive) pole piece and create a secondary magnetic field that modulates the input signal and results in increased levels of harmonic distortion. By placing a non-magnetic shorted turn around the pole piece, eddy currents are effectively suppressed. In addition to reducing distortion through eddy current suppression, demodulation rings also

KLASIK

ACTIVE STUDIO MONITOR 2020



Rear panel ports.

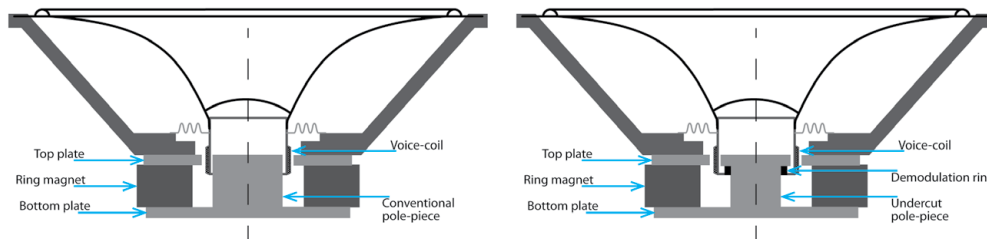
improve flux linearity within the magnet system, reduce magnetic hysteresis, and minimise the variation of voice-coil inductance with position. In my experience, these kinds of measures taken within the magnet system to reduce distortion often produce impressive results, and a recent example of such measures being taken to extreme lengths, namely the Purifi driver used in the Jones-Scanlon Baby Red monitor, bears this out.

Measurements

Before I write about my experience of listening to the Klasik 2020 I'll describe what I found on firing up FuzzMeasure Pro to collect some acoustic data, check a few

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Diagram 1: A conventional magnet system (left) versus a driver fitted with a demodulation ring and undercut pole.



» fundamental characteristics and investigate the Klasik 2020's reflex port loading. So, Diagram 2 shows the Klassik 2020's axial frequency response from 300Hz to 20kHz. It's satisfyingly flat, and apart from the peak just below 20kHz (an inherent characteristic of the SEAS tweeter), it all falls within a 1.5dB window. The sharp-eyed will notice that there's actually two curves in Diagram 1, and that's because I measured both monitors of the pair (I actually always do) to see if I could confirm the APS claim of pair-matching to $\pm 0.25\text{dB}$. My measurements put it at more like $\pm 0.5\text{dB}$, however in my experience $\pm 0.25\text{dB}$ would not only be pretty hard for me to confirm in terms of experimental error, it's also a seriously ambitious target. Speaker drivers are typically made of vibrating bits of paper, rubber and glue, and achieving genuine, wide-bandwidth, long-term consistency across multiple units is one of the hardest (and least captivating) engineering and production challenges. So even if my pair of Klasik 2020s didn't quite seem to meet the claimed $\pm 0.25\text{dB}$, the $\pm 0.5\text{dB}$ result is still really impressive in my book.

Diagram 2 illustrates the effect of switching the Klasik 2020 high-frequency EQ options, and reveals no surprises. It looks like the high-frequency EQ switch simply adjusts the overall gain of the tweeter amplifier, which is not unusual.

FuzzMeasure Diagram 3 illustrates how the Klasik 2020 frequency response varies 15 degrees above and below the perpendicular axis. Again, there's no huge surprises to report, although it's slightly unusual to find that the location of the response dips varies significantly between off-axis directions. While we're on the subject, these dips are typical of all almost multiway speakers and are caused by the difference in relative path lengths between the two drivers and the measuring microphone. Different path lengths mean that in the crossover region, where the outputs of the two drivers overlap, destructive interference will occur as the two signals go out of phase. The position and severity of such vertical off-axis response dips are a function of the crossover filter topology employed, the distance between the drivers, and of course their inherent frequency responses. In the nearfield, such dips can be significant because they influence the tonal character of early reflections (the desk reflection in a monitoring context, for example), but in the midfield and farfield they will mostly be averaged out by the room. I didn't measure

the Klasik 2020's horizontal off-axis dispersion, but there's no reason to expect it to be anything but typical of the two-way nearfield monitor breed.

Moving on, I wrote earlier on that I'd investigate the Klasik 2020's reflex port a little, and Diagram 4 is the result. The diagram actually illustrates two close-mic measurements of the bass driver; one with the port slots open and one with them blocked. I've shown these curves because they're actually more revealing than a close-mic measurement of the port output, which simply revealed a low-Q and relatively low-level peak (centred around 40Hz), suggesting that the port resonance is heavily damped. The Diagram 4 curves showing the driver output with and without the port blocked confirms that diagnosis, because the two curves are not far apart. A typical close-mic frequency response of a bass driver in a reflex-loaded speaker will show a high-Q suck-out at the port resonance frequency, but the Diagram 4 'port open' curve shows just a gentle dip. So it looks like, while the Klasik 2020 has a reflex port, it's actually closer in its low-frequency high-pass filter characteristics to a closed-box speaker. The port doesn't actually appear to make a huge contribution.

Finally, Diagram 5 illustrates a close-mic comparison of the three low-frequency EQ options offered by the Klasik 2020. Due to the size constraints of my listening and measuring environment I'm not able

ALTERNATIVES

The Klasik 2020 is excellent, but that doesn't mean there aren't some very good monitors in the same kind of price bracket. To start with I'd have a listen to the **Focal Shape 65**, the **Dynaudio Lyd 7**, the **Neumann KH120** and the **Genelec 8330**.

to make accurate farfield low-frequency measurements, so the curves in Diagram 4 don't reflect a true measurement of the Klasik 2020's low-frequency response, but they do provide reasonable comparison data and show the significant effect of the three LF options. It's no surprise that I found them each to sound markedly different.

Speaking of the way the Klasik 2020 sounds, the FuzzMeasure data reveals that, apart from it being perhaps closer to a closed-box system than a ported one in LF character, it's nothing particularly out of the ordinary. It's just a well-engineered, traditional, compact, active monitor, with no obviously outstanding features or technologies that might differentiate it from the entry-level crowd... Right? Well no, there's more to it than that, because the Klasik 2020's subjective performance turned out to be genuinely startling.

Listening In

I occasionally have "woah!" moments when I first switch on and listen to a monitor, but

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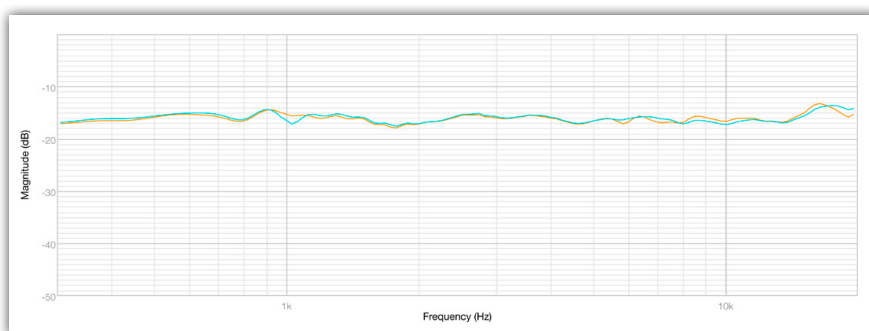


Diagram 2: The 300Hz-20kHz frequency response of a pair of Klasik 2020s, showing their close matching.

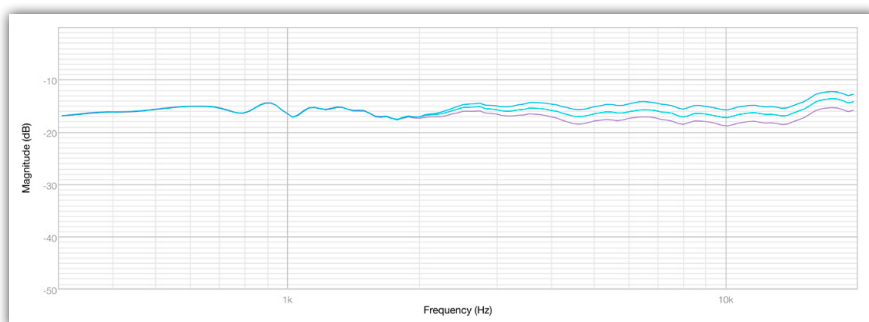


Diagram 3: This graph shows the effect of the HF EQ options.

» those moments are almost exclusively reserved for seriously high-end products such as the Kii Three or Dutch & Dutch 8C. But I had a “woah!” moment with the Klasik 2020, and for the first hour or so I just sat there listening to track after track and thinking, “How can this be?” And then I remembered the Klasik 2020’s price, and that was another “woah!” moment. The Klasik 2020 is an exceptional bargain.

Starting with low frequencies, the Klasik 2020 sounds, as my LF measurements suggest, much closer to a closed-box monitor in its bass character than a ported monitor, at least to my ears. Bass stops and starts with precision and displays completely unambiguous pitch. Kick drums and bass guitars remain audibly separated rather than unhelpfully entangled, and the tonal detail of bass instruments — the growl of a P-bass or the woody rasp of a bowed double bass, for example — aren’t masked by even a hint of port-loaded and resonant fug. Of the three Klasik 2020 LF EQ options, I preferred the middle ground. The more extended option seemed a little over ambitious for the bass driver as volume level rose (bass lost a little of its precision), and the less extended option seemed a little unnecessary — although perhaps if monitoring very loud, the increased low-frequency power handling that restricting the bandwidth provides might prove useful. The middle LF EQ position is a well-judged compromise and I can’t really imagine many situations in which I’d want to reach around the back of the monitors and change it.

Further up the range, and especially in the all-important vocal region, the Klasik 2020 displays explicit, high-end monitor clarity and dynamic detail, and combines that with a natural, uncoloured tonal quality that’s free of any distracting narrow-band emphasis. Well-recorded voices sound truly seductive. Less well-recorded or unsympathetically processed voices sound, well, unsatisfying. Imaging focus is pin-sharp with fabulous location, depth and definition of reverb tails. Mix elements all seem to inhabit their own acoustic space.

I found the Klasik 2020’s top end to be probably the least striking aspect of its performance, but only because its tweeter just gets on with the job without drawing attention to itself. It perhaps lacks a little of the classy panache of the Klasik 2020’s midrange, but it offers a good level of high-frequency detail without any harshness. My basic benchmark for high-frequency monitoring is if I’d be happy de-essing vocals, and the answer on the Klasik 2020

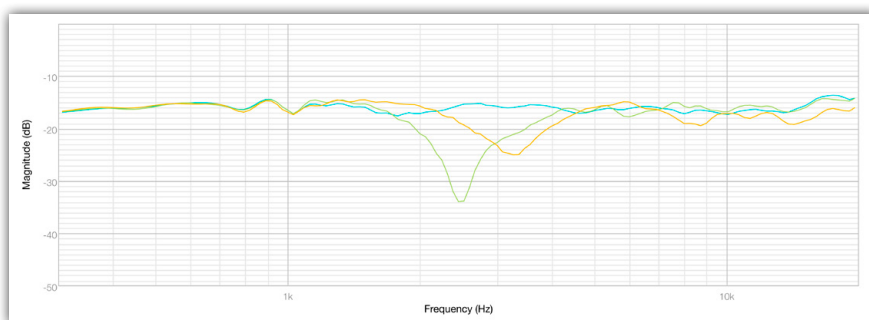


Diagram 4: The effect of moving the measurement mic vertically off axis, above and below by 15 degrees (green and orange traces, respectively).

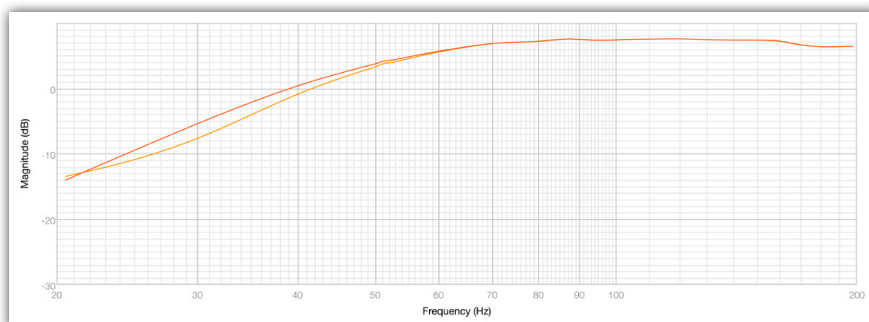


Diagram 5: LF response measurements, taken with the port open (orange) and blocked (red).

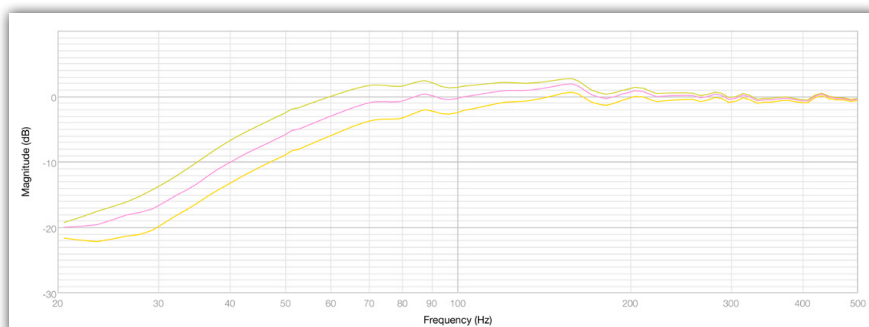


Diagram 6: The LF EQ options.

is a yes: I’m confident I’d be de-essing the vocals and not the tweeter.

The Klasik 2020 illustrates partly what I find so fascinating about electro-acoustics and speaker design. Very occasionally a speaker comes along that somehow has all its stars aligned and delivers a level of subjective performance way beyond its pay grade and the sum of its parts. The Klasik 2020 is one of those, and considering its competitive price, that makes it quite a find. The question I’m left with, however, is why? What is it in the design and technology of the Klasik 2020 that makes it work so well? If I were to hazard a guess, I’d say it’s the near-closed-box loading, and a very low-distortion bass/mid driver that’s extremely well behaved in terms of its diaphragm and surround. Add a nice rigid enclosure and a well-behaved tweeter to the mix, along with amplification and filter

electronics that don’t get in the way, and a bit of monitoring magic happens.

If you’re a regular *SOS* reader you’ll appreciate that I’ve lived with and reviewed quite a few nearfield monitors over the last 10 years or so, and I think it’s true to say that almost all of them have been competently designed and basically capable of doing a monitoring job. A few have stood out by offering something unusually exceptional, but most, if not all, of those have been expensive, high-end monitors that only a fortunate few can aspire to. The Klasik 2020 is among the outstanding, yet it’s affordable. As I say, it’s quite a find. **///**

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