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# Reference 3A Dulcet Loud- speaker

Think finesse

Dick Olsher



Let me start with a confessional. It's been about two decades since I've seriously auditioned a mini-monitor loudspeaker. Traveling down memory lane, I recall the ProAc Tablette, small enough to fit in a shoebox, being positioned in front of my reference loudspeaker at that time, the Plasmatronics. Those were the days. The Plasmatronics, with its blue-glow helium-plasma driver, required me each month to drag full-size helium gas bottles across the house to feed it. While the plasma driver was sonically incredible, the rest of the range was rather ordinary—Audax drivers in a box. Imagine, then, the Tablette

being totally dwarfed by the large Plasmatronics, not to mention the enormous price differential. And yet, when the music started flowing, the Tablette was responsible for one of those audio-transforming moments. I realized that it was actually more musical-sounding than the Plasmatronics. It was able to put its “finger” more convincingly on the pulse of the music. The Tablette boogied, while the Plasmatronics plodded along. Despite the siren call of the plasma, it became obvious that the speaker had to go. I'm not suggesting that the Tablette was close to perfection—far from it.

Bass extension was so limited that timbre accuracy was impacted. The venerable J. Gordon Holt, founder of *Stereophile*, thought that I had gone off the deep end by endorsing a loudspeaker that failed to honestly reproduce instrumental timbre. Well, that may be, but for me the Tablette was a beacon of enlightenment.

And so it was that I approached the Dulcet review with a degree of anticipation.

Right out of the box, and set up as recommended in the manual without any toe-in toward the listening seat, there was a definite lack of treble air and

energy. It sounded like the entire upper range was “de-fanged.” Not surprisingly, measurements confirmed that both the lower and upper treble response at about 30 degrees off-axis dropped by 3 to 5dB. Toe-in toward the listening seat was clearly indicated, and that’s how listening sessions were performed. The final setup approximated the classical approach for maximizing imaging excellence, with the speakers and listening seat at the corners of an imaginary isosceles triangle and the speakers positioned well away from the rear wall. The EAR 834T integrated amplifier that works so astonishingly well with the Magnepan MG3.6/R sounded too laid-back for the Dulcet. Optimum results were obtained with the PrimaLuna Prologue 7, a KT88-based monoblock. I used the 8-ohm taps, whose livelier upper range better suited the needs of the Dulcet. I also experimented with bi-wiring and discovered that it made for a noticeable sonic difference in image focus and midrange purity. Providing that you have good quality speaker cable, bi-wiring is highly recommended in this application.

## Dynamic nuances are the engine that stokes music’s passion

Suaveness—some speakers have it, others don’t. The Dulcet has it in spades. The midrange sounded exceedingly cohesive and smooth; residual distortion products never intruded even at moderate listening levels. There was plenty of low-level detail to behold, but without the attendant, etched, hyperactive character of some mini-monitors. Soprano voice was nicely focused but lacked a bit of sparkle and sheen, as did violin overtones. It is common practice to polish multiple tracks in a multi-track recording with artificial reverb and EQ. In particular, vocal tracks are often given a lift in the lower treble. Such recordings lost a bit of immediacy, and it was here that the Dulcet

## The Technical Bits

The Dulcet is a two-way design featuring custom drivers and bass-reflex tuning. Much attention was focused on developing a new and well-damped cast-metal-frame 5" woofer capable of good power handling, bass extension, and smooth high-frequency roll-off. Its cone is made of high-density polypropylene that is further damped with two polymer coatings. In keeping with Reference 3A’s design philosophy, the woofer is allowed to roll off mechanically, without the assistance of a low-pass crossover network, in the belief that best crossover is no crossover at all. The woofer communicates directly with the power amplifier without any intermediate crossover coils or caps. My guess is that the woofer’s output is flat to at least 5kHz, before roll-off, and as such produces almost all of the Dulcet’s acoustic energy. Special attention was also given to the bass-reflex port, which consists of a 45-degree folded ABS pipe to reduce port noise. The 1" silk-dome tweeter is custom-made and features a non-resonant rear chamber, an over-hung voice coil, and a low resonant frequency of about 600Hz, while a first-order crossover network, comprising a single custom-manufactured paper-in-oil capacitor, protects the tweeter. The cabinet’s front baffle is sloped in order to time align the acoustic centers of the woofer and tweeter, and because the tweeter’s position is slightly offset from vertical on the front baffle, correct right/left positioning requires that the tweeters be on the outside edges of the cabinet. All drivers are said to be broken in for at least 72 hours prior to matching to tight tolerances. Protective grilles are provided, but it is recommended that they be removed during listening sessions, and that’s how my listening tests and measurements were conducted, with the Dulcet mounted on the Reference 3A “Solid” variable-height speaker stands. The review samples, finished in gorgeous piano black, integrated nicely with these stands. A set of spikes for coupling the stands to the floor is provided. And as a nice touch, a package of “Blu Tack,” reusable adhesive putty for use in securely mounting speakers to the top platform, is also included. The user manual recommends matching speaker stands of about 28" in height for best tonal balance and imaging. That worked for me, though the key here is to ensure that the listening axis coincides with the woofer height. Depending on the listening-seat height and your particular anatomy, you may want to slightly raise or lower the stand height, and the Reference 3A stands allows you do that easily enough. My measurements showed pretty flat frequency response on the woofer axis, extended to at least 20kHz. However, on the tweeter axis there was a lower treble dip (3 to 5dB) centered at 9kHz. This suggests that the woofer beams through the presence region, and fails to provide adequate output to integrate with the tweeter—at least on the tweeter axis. **DO**

slightly obscured reverberant decay. The flip side of smoothness is an overdamped characteristic, a polite manner, a middle-of-the-hall tonal perspective, which the Dulcet never relinquished. It refused to sound forward or bright even when the program material was tilted in that direction.

Dynamic nuances, microdynamics if you will, constitute the engine that stokes

music’s passion. I felt that the Dulcet held its own in this department, though it came across as more emotionally restrained than I would have liked. Compression was evident when it tried to scale the dynamic range from loud to very loud. Transient speed was in line with other speakers at this price point. Mind you, I am ultra-sensitive to transient attack, having been exposed extensively to exceedingly fast

full-range drivers such as the British Lowther, whose transient acceleration is legendary. Transient decay, however, was well controlled. In my opinion, many designers push a dome tweeter too far down in frequency without adequate crossover protection. The result is excessive distortion coupled with a brightness that has caused me to develop an allergy to the sound of the average dome tweeter. The Reference 3A design team is to be complemented for its intelligent tweeter integration (see technical sidebar). I may complain about insufficient lower treble output, but I would opt for smoothness over harshness any day.

Mini-monitor aficionados will rejoice at the Dulcet's imaging prowess. It performed the proverbial disappearing act. Close your eyes and try to localize these speakers. You will discover that it's impossible to do that. The spatial impression possessed excellent depth perspective and continuity from left to right, without any holes in the middle. Image outlines were etched with laser precision and remained rock-solid as musical lines ebbed and flowed across the harmonic spectrum. Even with less than ideal stereo recordings the sound never appeared to be localized at the speakers. I should emphasize that image outlines were pinpoint in extent, which is how most conventional box speakers portray image size. This is in stark contrast to the more realistic height perspective with which large planars (e.g., Magnepans) portray instrumental outlines. Transparency, while not in the class of a good electrostatic speaker, was still sufficient to reveal the inner recesses of the soundstage.

A small woofer with limited acoustic compliance is perfectly happy in a small box, and that affords some compensation for the concomitant reduction in efficiency and bass extension. Mini-monitors, by virtue of their small enclosure size, produce less cabinet flexing and boxy resonances,



so that bass lines are typically “fast” and detailed. I am happy to report that this was the case with the Dulcet. In-room bass extension was about 60Hz, which is excellent performance indeed for a mini-monitor. But beyond that, the upper bass was reasonably full-bodied, conveying a surprising measure of orchestral weight, though still too lean to suit symphonic music. In Hollywood, lean may be in, but this isn't Hollywood. After living with 15" woofers for so long, you can imagine that what I missed the most was realistic midbass punch. Kick drum, for example, lacked visceral impact. But then again, no one of sound mind would purchase a mini-monitor for killer bass reproduction. When it comes to mini-monitors, think finesse.

True to its name, this Canadian bonbon produces smooth and melodious sound, and as a bonus is reasonably well balanced through the bass range. Its sonic demeanor is such that it should happily partner with an even less than sterling digital front end. If you are considering a mini-monitor, be sure to give the Dulcet a serious audition. **TAS**

## Specs & Pricing

### REFERENCE 3A

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Kitchener, Ontario  
Canada N2H 2N9  
(519) 749-1565  
info@reference3a.com  
reference3a.com

**Type:** Two-way stand-mount speaker  
**Driver complement:** 5" woofer, 1" tweeter  
**Frequency Range:** 48Hz–20kHz  
**Sensitivity:** 87dB  
**Nominal Impedance:** 8 ohms  
**Recommended amplifier power:** 20–100Wpc  
**Dimensions:** 7.5" x 12" x 9.5"  
**Weight:** 15 lbs.  
**Price:** Dulcet, \$1695 (natural, red, and very dark brown stained maplewood finishes, \$1865 (in high-gloss piano-black finish); solid variable height stands, \$345

### ASSOCIATED EQUIPMENT

Kuzma Reference turntable; Graham Engineering 2.2 tonearm; Symphonic Line RG-8 Gold MC phono cartridge; Air Tight ATE-2 phono stage; Altmann Micro Machines Attraction DAC, Blue Velvet DIY linestage, EAR 534T integrated amplifier, PrimaLuna Prologue 7 monoblock amplifiers; Acrotec 6N and 8N copper; Kimber Select KS-1030 interconnects; Fadel Art Streamflex Plus, Acrotec 8N copper speaker cable