

PROFICIENT  
**Protege**<sup>™</sup>  
Powered Subwoofers



Proficient Protege FS10 vs Proficient PS10  
Subwoofer Comparison

# How We Created the New Subwoofers — and Why They're Better

The all-new Proficient Protege FS dual drive subwoofers represent a complete rethinking of our floor-standing subwoofer line. Instead of tweaking our older designs, we started with fresh engineering incorporating the very latest technology. The result is a line of subs that deliver as much as +10dB more deep bass output than typical subs of their size. That's a bigger deep-bass boost than you'd get by adding a second sub.

All of the new floor-standing subwoofers feature powerful Class D amps and tough, high-excursion composite-cone woofers. Plus a down-firing passive radiator that really brings out the ultra-deep bass notes.



Thanks to the passive radiator, you get extra bass without taking up more space. With line and LFE in, high-pass line out, and volume, crossover and phase controls, these subs interface with almost any kind of system.

In the process of developing these new subwoofers, we conducted an extensive comparison of the new Proficient Protege FS10 sub with our older model, the PS10. Both have 10-inch woofers, but the PS10 has a 120-watt Class AB amp and a ported cabinet, while the new model has a 250-watt Class D amp, a passive radiator and a beefed-up driver. In this report, we'll share the results of that comparison test.

## Listening Test Intro

For our listening tests, the levels of the two subwoofers were matched to within 0.5 dB with pink noise. We used the

industry-standard 80 Hz subwoofer crossover point between the subwoofers and the main speakers.

# Movie & Music Listening Tests

**Movies:** The scene that opens *Star Wars, Episode II: Attack of the Clones* features the ultra-deep bass tones of a spaceship that passes over, lands, then explodes. On this scene, the new Proficient Protege FS10 delivered satisfying shake and impact, with enough deep bass power that it might actually make listeners jump out of their chairs. In comparison, while the older PS10 gave the system a nice, full sound, it produced no real sense of deep bass when the spaceship passes overhead, and little of the impact when the ship explodes a minute later.

Likewise, when we played the depth-charge scene from *U-571*, the new FS10 gave off a real sense of shake and rumble that got us more involved in the movie, and actually feeling just a touch of the fear you'd experience in an actual naval attack. With the older PS10, the explosions of the depth charges sounded more like someone banging on a big trash can — i.e., the higher-frequency



sounds of the explosions were there but the low-frequency sounds were missing.

**Music:** The melodic bass line in Steely Dan's "Aja" is just the kind of thing we tuned the PS10 for. We have to admit that that older model has a slight advantage in pitch definition on this tune; the upper notes of the electric bass sounded a little clearer and better-defined. However, the new FS10 had much so much more sense of authority in the lower notes that we feel it delivered a better performance overall.

On Olive's "Falling," an electronic pop tune that features a powerful, very deep synthesizer bass line, the new FS10 delivered the low-frequency shake of the tune's deepest notes. In comparison, the PS10 was overwhelmed by this tune; it simply didn't have the muscle to play the deep notes at a useful level. We heard the same thing when we played rock and hip-hop tunes: The FS10's extra muscle won us over every time.

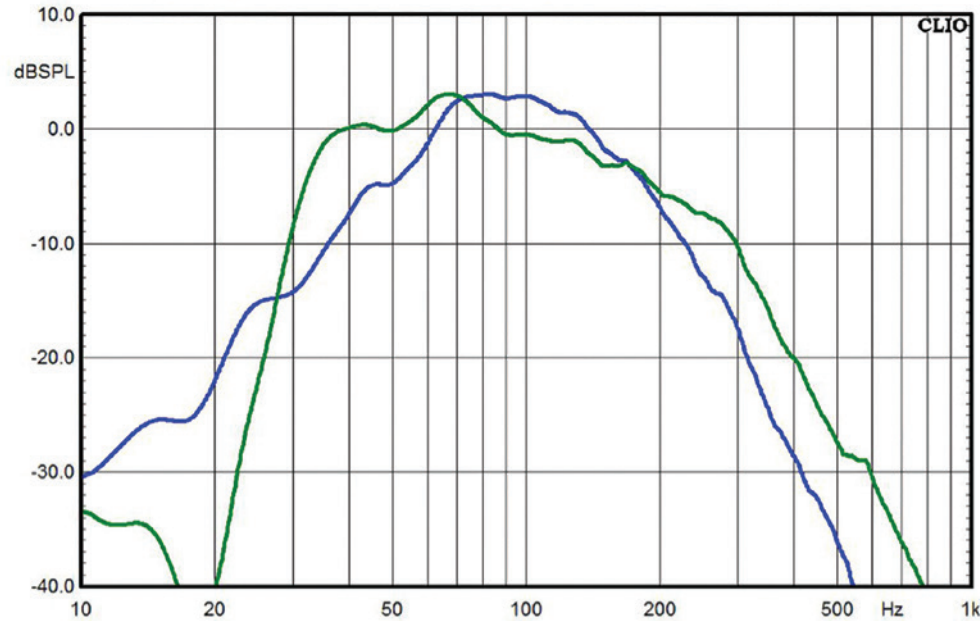
# Measurements: Frequency Response

To find out how the FS10 and PS10 compare on lab measurements, we first tested the frequency response, a measure of how deep a subwoofer can play and how evenly it reproduces different bass notes.

Measurements were taken at a reference level of 90 dB at 60 Hz, using ground-plane technique with a calibrated microphone placed two meters from each subwoofer. The resulting response curves were smoothed to 1/6th octave.

Generally speaking, the flatter and broader these curves, the better the subwoofer. The more the curve looks like a gently rounded hill (and the less it looks like the Matterhorn), the better.

As you can see, the Proficient Protege FS10 response curve is much flatter and more even and it has much more response between 30 and 60 Hz — which for a subwoofer is where it really counts.



**Proficient PS10:** 55 - 170 Hz,  $\pm 3$ dB

**Proficient Protege FS10:** 33 - 147 Hz,  $\pm 3$ dB

# Measurements: CEA-2010 Maximum Output

CEA-2010 measurements tell you how loud a subwoofer can play at different bass frequencies. A lot of small subs can play deep notes, but it's the ability to play loud, clean and deep that distinguishes the better subwoofer.

Test-tone bursts were run at six different bass frequencies with a calibrated microphone placed two meters from each sub. Results below are in 1-meter peak equivalents. For 2-meter results, subtract -6 dB; for RMS results, subtract another -3 dB.

While both units deliver roughly equivalent performance at 63, 50 and 20 Hz, the Proficient Protege FS10 has a big advantage at 40 Hz (+9.6 dB) and 32 Hz (+14.8 dB). The FS10's low bass output is much more powerful.

Each sub sounds good on most bass material, but the FS10 can deliver the realistic impact of a kick drum or an explosion in a movie soundtrack while the PS10, and most other 10-inch subs, really can't get it done.

Frequency Response	Proficient Protege FS10	Proficient PS10	Change In Output
63 Hz	118.8 dB	119.3 dB	-0.5 dB
50 Hz	114.0 dB	113.9 dB	+0.1 dB
40 Hz	110.9 dB	101.3 dB	+9.6 dB
Avg 40-63 Hz	115.2 dB	114.2 dB	+1.0 dB
32 Hz	108.1 dB	93.3 dB	+14.8 dB
25 Hz	95.1 dB	90.2 dB	+4.9 dB
20 Hz	76.2 dB	76.4 dB	-0.2 dB
Avg 20-32 Hz	100.5 dB	89.1 dB	+11.4 dB

# All New Design

Our listening tests show that the Proficient Protege FS10 sounds better overall than the PS10. Our measurements show very clearly that the FS10's technical performance is better in every way. We're confident enough that our dealers, our customers and professional reviewers will come to the same conclusion that we've decided to sum up our results in this report — something we've never before done with one of our speakers.

We were always happy with the sound of our PS-series subwoofers, and our customers were, too. But subwoofer design — the drivers, the amplifiers, the tuning — has advanced a long way since we created the PS-series.



Dual Driver Design

When we began this project, we weren't sure we could improve on the sound and tonality of the PS-series subs. We knew, though, that by beefing up the drivers and roughly doubling the amplifier power, we could get a lot more muscle than the PS-series subs delivered.

The passive radiator design allowed us to achieve higher performance while keeping the new subwoofers compact enough to fit almost anywhere. Using a traditional ported enclosure, we could've gotten comparable performance, but the new subs would've been much larger.

To illustrate this point: We've seen how much more muscle the FS10 has compared with the PS10. Yet thanks to the passive radiator, the FS10 is actually 8 percent smaller in physical volume!



# Conclusion

Although this report didn't test durability, it's important to note that the Proficient Protege subwoofers are built to last through many years of use.

The use of a much wider surround (the half-rolled section that connects the cone to the speaker's metal frame) in the Proficient Protege woofers allows the cone to move further forward and backward, so the woofers can put out more volume and handle more power without sacrificing reliability.

Even though the amplifiers in the Proficient Protege subwoofers are much more powerful than the amps in the previous models, their Class D design keeps them running cool without concerns about overheating.

We're not just saying these new subs are more reliable, we're backing it up with a new three-year warranty — a full year longer than the two-year warranty we offered on the PS-series subs.

The bottom line is that the Proficient Protege FS-series dual drive subwoofers are roughly the same size and price as our previous line, but deliver dramatically more deep-bass output and much more compelling sound quality.

So whether you're listening to movies or music, or using them in a two-channel stereo system or a home theater surround-sound system, they do all this with enhanced reliability and a longer warranty. Quality built, of course. Just like you'd expect from Proficient.



High Output Class D Amplifier



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