Enjoy up to 9 hr 47 min of uninterrupted battery life

based on MobileMark 2018 results*

Switch to battery without gutting system performance

based on PassMark, Procyon, Cinebench, and 3DMark results

Get comfortable with a system that stays quiet without overheating

based on hot-spot temp and acoustic readings under load

*With Windows power set to "best power efficiency" mode

The HP ProBook 445 G10 Notebook PC: Work a typical business day with no strings (or power cables) attached

A comparison to a Dell Latitude 3440 laptop

For the modern remote and hybrid workforce, any space could become a workspace. In fact, because boredom can tank productivity and new scenery can have positive mental health effects,[1] changing environments during the workday can be beneficial—both for employees and for organizations' bottom lines. The devices that these mobile trailblazers use should empower remote work with extensive battery life, high performance, and as little distracting noise and heat output as possible. Hands-on testing can help paint a picture of which devices could deliver the performance workers need to carry out a productive day on the go.

At PT, we used industry-standard benchmarks to compare multiple types of plugged-in and unplugged system performance in addition to battery life on an HP ProBook 445 G10 Notebook PC powered by an AMD Ryzen™ 5 7530U processor and a Dell™ Latitude™ 3440 laptop powered by an Intel® Core™ i5-1335U processor. To determine potential system performance degradation while working unplugged, we ran these benchmarks twice—once while the devices were plugged in and again when they were unplugged. In addition, we examined how hot and loud each became while running a CPU-intensive workload. We found that on most tests the HP ProBook 445 G10 Notebook PC powered by an AMD Ryzen™ 5 7530U processor outperformed the Dell Latitude 3440 laptop powered by an Intel Core i5-1335U processor.

This project was commissioned by HP and AMD.

What we tested

Before we started testing, we set both 14-inch business laptops to "best performance" power mode. For the MobileMark battery life tests, we conducted both "best performance" and "best power efficiency" power mode comparisons. We also set screen brightness to 205 nits for the MobileMark 2018 battery life tests and 235 nits for the MobileMark 25 battery life tests. Other than making and verifying those changes, we used out-of-box OEM performance settings.

HP ProBook 445 G10 Notebook PC

AMD Ryzen™ 5 7530U processor (GHz 2.0 – 4.5) with Radeon™ graphics

6 cores with 12 threads

16 GB of dual-channel memory

256 GB of PCIe® NVMe® SSD storage

43WHr battery

Dell Latitude 3440 laptop

Intel Core i5-1335U processor (GHz 1.3 – 4.6) with integrated Intel UHD graphics

10 cores with 12 threads

16 GB of single-channel memory

256 GB of PCIe® NVMe® SSD storage

42WHr battery

We ran the following performance-based benchmark tests twice—once with the laptops plugged in and again with them unplugged in "best performance" power mode:

- PassMark PerformanceTest 11
- Procyon® Video Editing Benchmark
- Cinebench R23
- 3DMark Fire Strike
- 3DMark Time Spy

To test battery life and efficiency, we ran MobileMark 2018 and MobileMark 25 benchmarks twice—once in "best performance" power mode and again in "best power efficiency" power mode. For our surface temperature tests, we ran a sustained CPU-intensive Cinebench R23 workload for 50 minutes, taking keyboard and bottom hot spot temperature readings every ten minutes. We then ran the CPU-intensive Cinebench R23 workload again for 20 minutes to record how much noise each device's fan produced under load.

The benchmark scores and battery life results we report reflect the specific configurations we tested. Any difference in the configurations you test, as well as screen brightness, network traffic, or software additions, can affect these results. For a deeper dive into our testing parameters and procedures, see the science behind the report.

About the HP ProBook 445 G10 Notebook PC

HP designed this 14-inch laptop to enable hybrid work in growing businesses. According to HP, this upgradeable model combines commercial-grade performance with advanced multi-level security and durability, which makes it ideal for long-term productivity.[2]

To learn more about the HP ProBook 445 G10 Notebook PC, visit the HP website: https://www.hp.com/us-en/shop/pdp/hp-probook-445-g10-notebook-pc-customizable-70z72av-mb.

About the AMD Ryzen™ 5 7530U processor

This 7000 Series Mobile processor is built on "Zen 3" architecture and balances power, performance, and efficiency.[3] The Ryzen™ 5 7530U model has six cores with 12 threads and includes integrated AMD Radeon™ graphics, PCIe 3.0 connectivity, and AMD Enhanced Virus Protection (NX bit).[4]

Performance benchmark results: Switch to battery without gutting performance

Being able to work unplugged without experiencing a steep drop in system performance is vital for anyone on the move or without access to a convenient power source. So, we ran the following benchmarks twice, first with plugged-in devices and again unplugged.

Check items off the to-do list faster

PassMark PerformanceTest is a productivity benchmark that gathers CPU, disk, memory, and 2D/3D graphics performance metrics before combining the individual component metrics to create a single, overall score, called the PassMark rating. The bigger the overall rating number, the faster the computer.[5]

Key productivity benchmark takeaways

- The ProBook 445 G10 we tested received higher overall PassMark ratings than the Latitude 3440 laptop in all plugged-in and unplugged comparisons.

- The unplugged ProBook 445 G10 we tested experienced about half the system performance loss (11.1 percent) of the unplugged Latitude 3440 laptop (22.1 percent) compared to their plugged-in performance.

- The lowest unplugged ProBook 445 G10 overall PassMark rating (3,511.4) was almost as high as the highest plugged-in Latitude 3440 laptop rating (3,515.0).

Plugged-in vs. unplugged performance

Only a **11.1%** performance drop with the ProBook 445 G10 vs. a 22.1% drop with the Latitude 3440 laptop

PassMark PerformanceTest
Performance score | Higher is better

HP ProBook 445 G10 Notebook PC
- 3,953.3
- 3,511.4

Dell Latitude 3440 laptop
- 3,515.0
- 2,735.9

Plugged in   Unplugged

Figure 1: PassMark PerformanceTest benchmark results. Higher is better. Source: Principled Technologies

Better handle demanding workloads

The Procyon Video Editing Benchmark uses Adobe® Premiere® Pro to "ensure that the benchmark score reflects the real-world performance of the whole system."[6] Cinebench R23 measures system performance by completing common Cinema 4D tasks that tax multiple CPU cores and modern processor features.[7] The 3DMark Fire Strike and 3DMark Time Spy game-based benchmarks stress the CPU and GPU to gauge how well systems handle ambitious real-time graphics.[8] Note: The batteries of both laptops ran out of power before the Procyon Video Editing Benchmark finished its unplugged tests.

Procyon Video Editing Benchmark
Performance score | Higher is better

HP ProBook 445 G10 Notebook PC

1,781

Battery died before test completed

Dell Latitude 3440 laptop

1,313

Battery died before test completed

Plugged in   Unplugged

Figure 2: Procyon Video Editing Benchmark results. Higher is better. Source: Principled Technologies.

Cinebench R23 multi-core benchmark
Performance score | Higher is better

HP ProBook 445 G10 Notebook PC

8,145

7,985

Dell Latitude 3440 laptop

8,194

6,332

Plugged in   Unplugged

Figure 3: Cinebench R23 (multi-core) benchmark results. Higher is better. Source: Principled Technologies.

Key video-editing and game-based performance benchmark takeaways

- The ProBook 445 G10 we tested received a higher plugged-in Procyon Video Editing Benchmark score than a Latitude 3440 laptop.

- Neither laptop could complete the unplugged Procyon Video Editing Benchmark challenge.

- The Latitude 3440 laptop we tested received a slightly higher plugged-in Cinebench R23 multi-core score (8,194 vs. 8,145)—but the ProBook 445 G10 we tested pulled ahead in the unplugged comparison (7,985 vs. 6,332) with a 26.1 percent higher unplugged score.

- The ProBook 445 G10 we tested received higher 3DMark Fire Strike and Time Spy overall scores than the Latitude 3440 laptop in all plugged-in and unplugged comparisons.

Plugged-in vs. unplugged performance

Only a **2.0%** performance drop with the ProBook 445 G10 vs. a 22.7% drop with the Latitude 3440 laptop

Why video-editing and game-based benchmark scores matter to you

While not everyone uses a laptop to edit videos or play games, higher scores here can translate to a more responsive device when using demanding productivity apps, financial analysis tools, product development and design software, computer-aided design (CAD) programs, and even MATLAB scientific simulation software.

3DMark Fire Strike benchmark
Performance score | Higher is better

HP ProBook 445 G10 Notebook PC

🔌 Plugged in	3,471
🔌 Unplugged	3,390

Dell Latitude 3440 laptop

🔌 Plugged in	2,692
🔌 Unplugged	2,623

🔌 Plugged in   🔌 Unplugged

⚡ **Plugged-in vs. unplugged performance**

Only a **2.3%** performance drop with the ProBook 445 G10 vs. a 2.5% drop with the Latitude 3440 laptop

Figure 4: 3DMark Fire Strike benchmark results. Higher is better. Source: Principled Technologies.

3DMark Time Spy benchmark
Performance score | Higher is better

HP ProBook 445 G10 Notebook PC

🔌 Plugged in	1,360
🔌 Unplugged	1,335

Dell Latitude 3440 laptop

🔌 Plugged in	1,162
🔌 Unplugged	1,121

🔌 Plugged in   🔌 Unplugged

⚡ **Plugged-in vs. unplugged performance**

Only a **1.8%** performance drop with the ProBook 445 G10 vs. a 3.5% drop with the Latitude 3440 laptop

Figure 5: 3DMark Time Spy benchmark results. Higher is better. Source: Principled Technologies.

Battery life and efficiency results: Stretch on-the-go productivity by hours

Many manufacturers provide battery life estimates that are the equivalent of burdenless walk times: The average adult can complete a 10-mile walk in between 2.5 and 3 hours. Our battery life tests are more like 10-mile endurance races. MobileMark 2018 measures battery life and performance at the same time. It uses real applications, workloads, and data sets to quantify how overall system performance affects the user experience.[9] MobileMark 25 puts devices through scenarios based on the real-world applications and activities business users encounter every day.[10] In these MobileMark battery life tests, we ask each laptop to carry a 25-pound pack and whistle a tune while climbing a mountain. In lesser laptops, this added burden can greatly affect performance.

Key battery life and efficiency takeaways

- In our MobileMark 2018 battery life tests, when we set both devices to "best power efficiency" power mode, the HP ProBook 445 G10 powered by an AMD Ryzen™ 5 7530U processor kept working almost 3 hours longer, received 27.6 percent higher performance qualification scores, and was 37.1 percent more efficient than the Dell Latitude 3440 powered by an Intel Core i5-1335U processor.

- In our MobileMark 25 battery life tests, when we set both devices to "best power efficiency" power mode, the HP ProBook 445 G10 powered by an AMD Ryzen™ 5 7530U processor kept working over 1.5 hours longer, received 51.8 percent higher index scores, and was 26.1 percent more efficient than the Dell Latitude 3440 powered by an Intel Core i5-1335U processor.

MobileMark 2018 "best power efficiency" mode battery life testing (205 nits) benchmark
Higher is better

Battery life (hr:min)
- 9:47
- 6:58

Minutes per WHr
- 13.7
- 10.0

Performance score
- 675
- 529

Unplugged ■ HP ProBook 445 G10 Notebook PC ■ Dell Latitude 3440 laptop

Figure 6: MobileMark 2018 battery life ("best power efficiency" mode) benchmark results. Higher is better. Source: Principled Technologies.

MobileMark 2018 "best performance" mode battery life testing (205 nits) benchmark
Higher is better

Battery life (hr:min)

🔌 7:55
🔌 6:08

Minutes per WHr

🔌 11.0
🔌 8.8

Performance score

🔌 1,248
🔌 1,267

🔌 Unplugged　　　■ HP ProBook 445 G10 Notebook PC　　　■ Dell Latitude 3440 laptop

Figure 7: MobileMark 2018 battery life ("best performance" mode) benchmark results. Higher is better. Source: Principled Technologies.

MobileMark 25 "best power efficiency" mode battery life testing (235 nits) benchmark
Higher is better

Battery life (hr:min)

🔌 7:54
🔌 6:07

Minutes per WHr

🔌 11.0
🔌 8.7

Performance score

🔌 243
🔌 160

🔌 Unplugged　　　■ HP ProBook 445 G10 Notebook PC　　　■ Dell Latitude 3440 laptop

Figure 8: MobileMark 25 battery life ("best power efficiency" mode) benchmark results. Higher is better. Source: Principled Technologies.

MobileMark 25 "best performance" mode battery life testing (235 nits) benchmark
Higher is better

Battery life (hr:min)

🔌 (Unplugged)	7:34
🔌	5:10

Minutes per WHr

🔌 (Unplugged)	10.6
🔌	7.4

Performance score

|	
🔌 (Unplugged)	392
🔌	316

🔌 Unplugged　　■ HP ProBook 445 G10 Notebook PC　　■ Dell Latitude 3440 laptop

Figure 9: MobileMark 25 battery life (best "performance mode") benchmark results. Higher is better. Source: Principled Technologies..

For more information on the test devices, our screen brightness (nit) choices, and testing parameters and procedures, see the science behind the report.
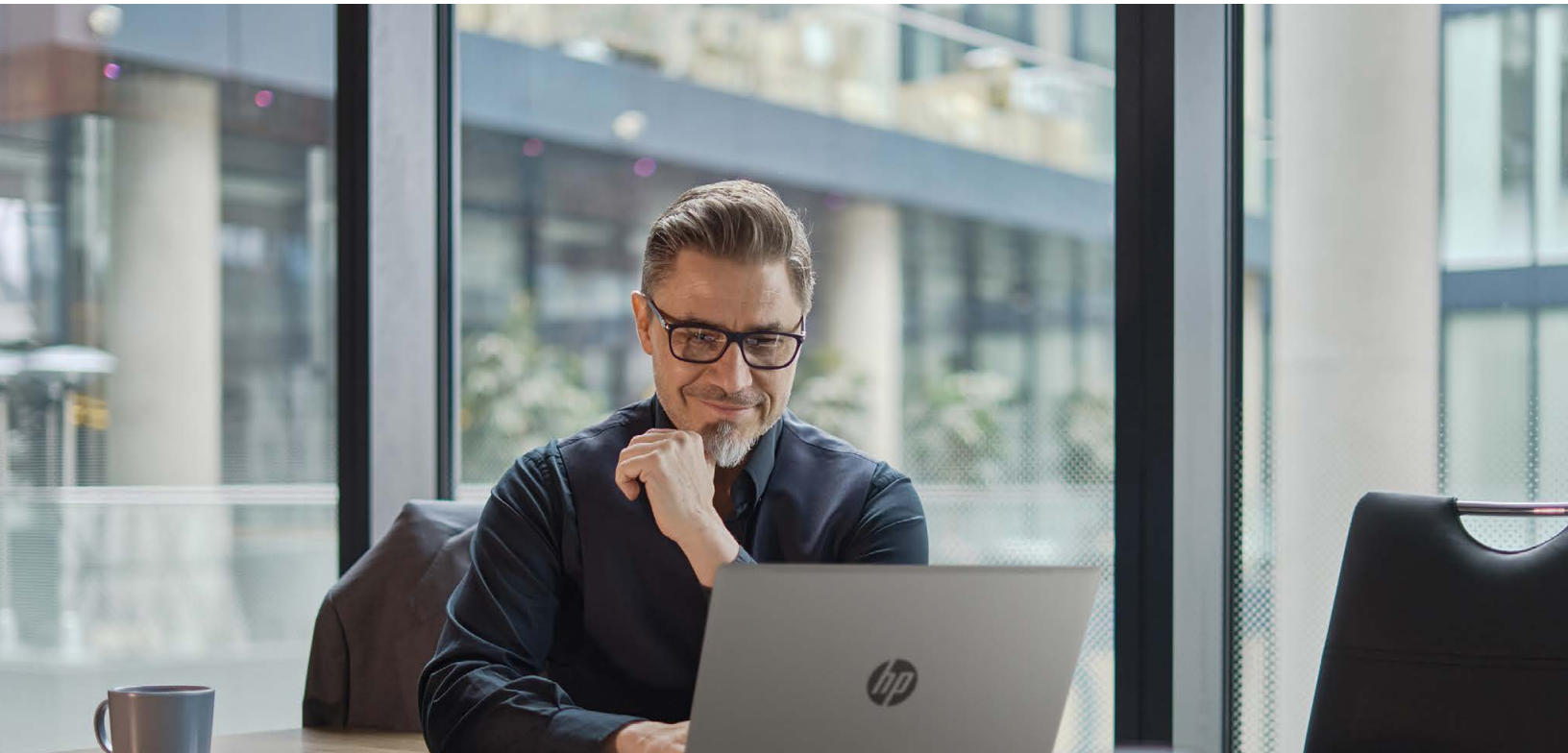
Thermal testing results: Work without overheating

High-performance processors put off a lot of heat—but laptop manufacturers understand that and dissipate the heat to keep both users and the hardware safe from harm. So, what's an acceptable temperature when laptops are running resource-intensive loads such as the Cinebench R23 workload we ran for 50 minutes? According to the Make Use Of newsletter, anything under 140°F/60°C is "perfect" in computer-land.[11] To see how each laptop compared, we took temperature readings every 10 minutes. The HP ProBook 445 G10 Notebook PC powered by an AMD Ryzen™ 5 7530U processor kept its cool at 108.5°F on the top hot spot and 131.3°F on the bottom hot spot.

The higher Cinebench R23 performance scores and comfortable surface temps make the HP ProBook 445 G10 Notebook PC powered by an AMD Ryzen™ 5 7530U processor an appealing choice for anyone who's not sitting behind a desk while they get things done.

Key heat and noise takeaways

- In our Cinebench R23-driven heat tests, the HP ProBook 445 G10 powered by an AMD Ryzen™ 5 7530U processor kept its cool and received a 31.1 percent higher Cinebench R23 score than the Dell Latitude 3440 powered by an Intel Core i5-1335U processor.

- In our Cinebench R23-driven noise tests, the HP ProBook 445 G10 powered by an AMD Ryzen™ 5 7530U processor was slightly quieter than the Dell Latitude 3440 powered by an Intel Core i5-1335U processor.

Thermal performance and surface temps during a sustained Cinebench R23 workload

Sustained performance score *(Higher is better)*
- 7,977
- 6,082

Keyboard deck temp *(Lower is better)*
- 108.5˚F
- 106.8˚F

Underside temp *(Lower is better)*
- 131.3˚F
- 122.5˚F

Plugged in | HP ProBook 445 G10 Notebook PC | Dell Latitude 3440 laptop

Figure 10: Thermal testing results. A higher score is better, and lower temperatures are better. Source: Principled Technologies.

Acoustic testing results: Keep the noise down

A noisy laptop can be a distraction for anyone, especially mobile trailblazers trying to complete the items on their to-do lists as quickly as possible. When we measured the noise levels of each device while idle and while running a Cinebench R23 multi-core workload, we saw that their average noise levels were roughly comparable, varying by fewer than three decibels. For scale, normal breathing is 10dBA, and 30dbA to 40dbA are akin to nearby whispering and quiet library sounds.[12]
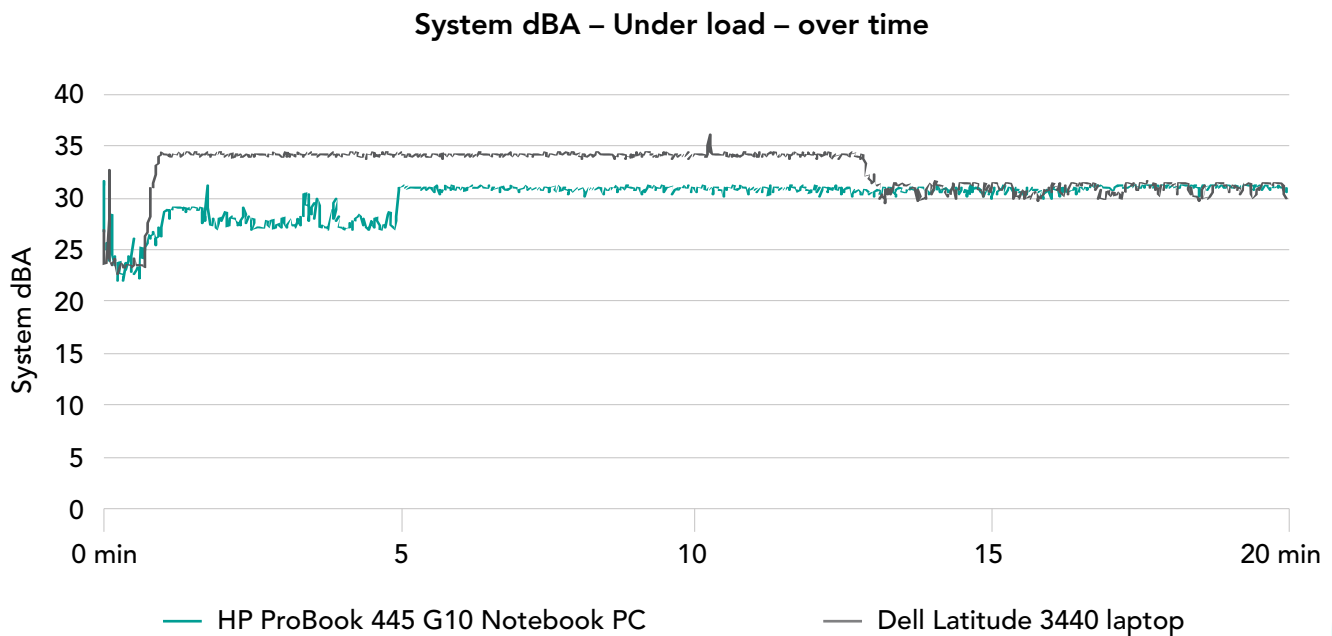
System dBA – Under load – over time

Figure 11: Acoustic testing results, in A-weighted decibels. Lower is better. Source: Principled Technologies.

Conclusion

There are many factors to consider when investing in new business laptops. By looking at real-world system performance and battery life from multiple angles, you can get a better overall view of what will potentially work best for your specific needs. In our hands-on performance, battery life, heat, and sound tests, we found that a HP ProBook 445 G10 Notebook PC powered by an AMD Ryzen™ 5 7530U processor achieved mostly higher benchmark scores–both plugged-in and unplugged—compared to a Dell Latitude 3440 laptop powered by an Intel Core i5-1335U processor. The HP ProBook 445 G10 also kept its cool and stayed quiet while running a CPU-intensive Cinebench R23 workload.

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Read the science behind this report at https://facts.pt/0why5QX ▶

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