Matter Certification:
The Value it Brings to IoT Devices

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Introduction

Matter certification is the process by which developers can validate their products and services on Matter's standardized wireless platform, enabling limitless opportunities for expanding IoT growth. IoT is ubiquitous in consumer and industrial markets throughout the world. It's the norm for consumers to purchase wireless devices from a variety of companies and brands to support their entertainment and practical needs in the home. The benefits of these tools are seen in the everyday lives of consumers across the globe, from security systems to smart TVs to kitchen appliances and beyond.

For industrial wireless devices (IIoT), the benefits are also far-reaching. Wireless solutions provide faster time-to-market efforts due to wireless technology's less cumbersome physical requirements. Cost savings are substantial as well for wireless solutions, and wireless technology can create work solutions that increase safety and efficiency for workers performing tasks remotely. Both consumer and industrial markets are benefiting immeasurably from wireless technology.

This whitepaper will explore the importance of Matter certification and its advantages for those developing IoT devices.

Despite the success of wireless technology, brands and companies creating IoT devices face challenges in the development of these products and services. For example, wireless development requires exhaustive testing of multiple wireless platforms, including Wi-Fi, Bluetooth, and Thread. Testing requires painstaking work with often mixed results. Compatibility is also a concern as devices from different brands can fail to play nice together in a mixed ecosystem.

In an increasingly wireless world with a variety of devices and ecosystems, the need for a standardized, reliable, and extensively tested solution is paramount. The solution is Matter. Matter seamlessly connects these many IoT devices in homes and workplaces by bringing together wireless ecosystems through one secure wireless protocol, offering a standardized, reliable, and unified solution.

How will technology companies leverage Matter to create and produce reliable and standardized devices or networks? The answer is Matter certification. Matter certification ensures that the steps taken throughout product testing and validation of new wireless devices result in successful solutions and satisfied consumers.

 We're going to explore how Matter certification provides the groundwork for Matter IoT devices to perform successfully in real-world scenarios as well its benefits and advantages.

Matter and the Importance of Certification

Matter certification is important because in the quickly growing IoT market, wireless technology should be standardized for greater efficiency and reliability. Consumers need to be confident that the devices they're introducing into their homes will work as advertised to make some aspect of their lives simpler. This ease of use is one of the primary gating factors in IoT adoption.

The testing process for IoT devices necessitates extensive testing of all the underlying technologies such as Wi-Fi, Bluetooth, and Thread, and in some cases, Ethernet. These testing scenarios are rigorous and often end in mixed results for developers. It's only with significant trial-and-error that developers create a proprietary solution for a wireless device. These efforts result in the expenditure of massive resources without the security of a reliable and consistent solution.

Matter is an IP-based solution that standardizes the development process for device manufacturers. With standardization, the major players in consumer and industrial wireless technology can focus on creating products and services that differentiate themselves in the market and know that those products will work reliably in any wireless ecosystem. Matter certification is important because tolerance for ineffective wireless technology among consumers and workers is very low – as it should be. Without standardization, wireless devices can be inconsistent and unreliable in ways that lead to ineffective and frustrating results. Matter certification will lead to the development of effective products that are ready for a variety of real-world scenarios, delivering the quality expected at home and in the business environment.

Amazon's Alexa, Apple Smart Home, and Google Assistant, among others, are embracing the standardization of Matter and recognize the importance of a universal connection between variegated devices.
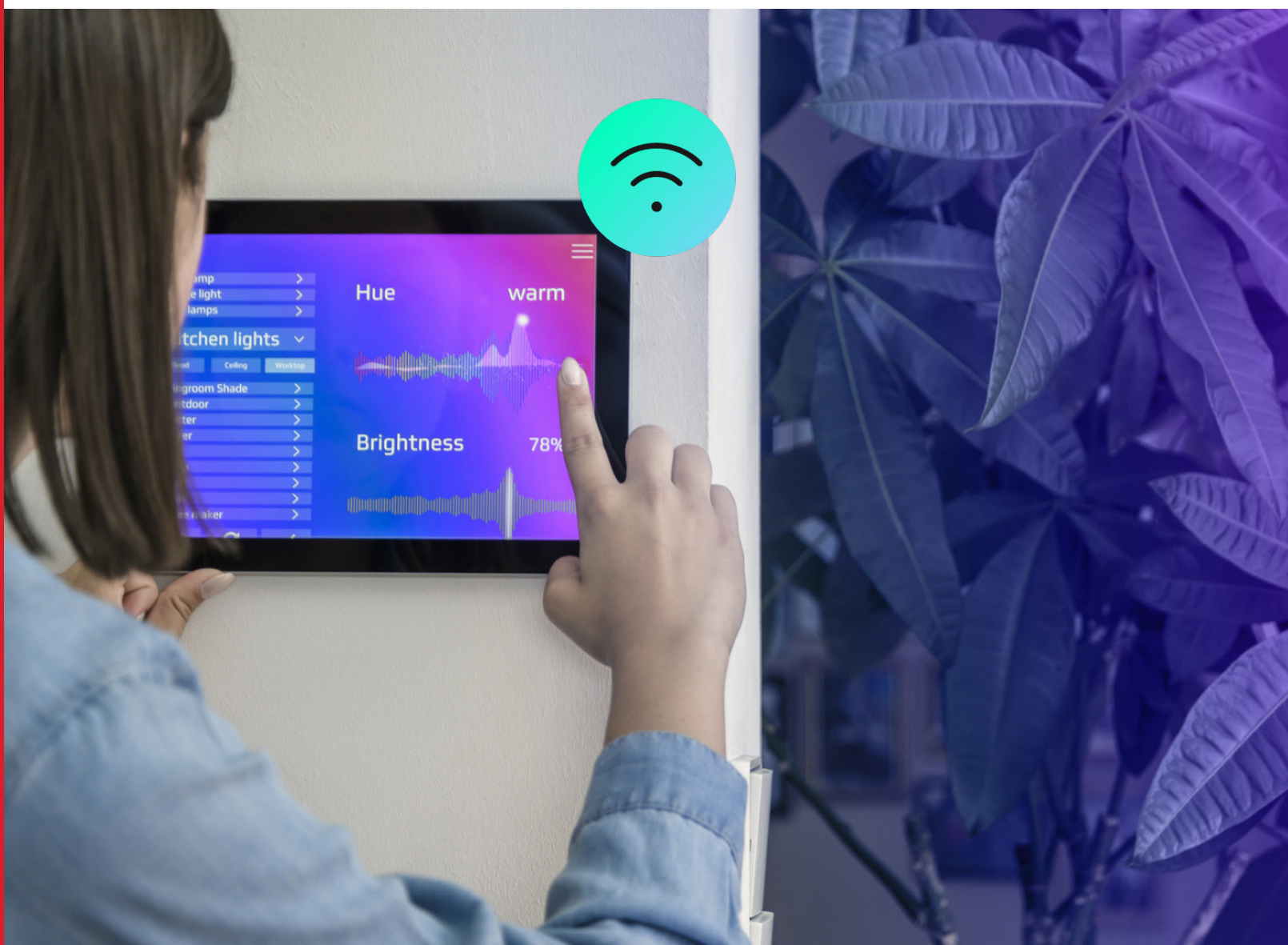
Interoperability is Key to the Matter Framework

Homes and businesses are not homogeneous. They often include, and sometimes necessitate, a variety of wireless platforms, spanning various brands and companies. Matter takes that convergence of devices and homogenizes the framework while allowing the devices to remain heterogenous. By standardizing the wireless framework, the total environment can stay nimble and flexible to the consumer's and business's needs and requirements.

The wireless market is competitive. Any device on the market has competitors vying for the same market space. Matter certification levels the playing field so companies can focus on the quality of the innovation and uniqueness of their product while trusting Matter's consistent results for wireless solutions. Without the need for proprietary wireless development within a company, resources can be allocated to add new features and increase functionality of wireless products. A greater focus on device-specific features and functions will naturally result in better products and services. By focusing on their core competencies, brands will exponentially grow their catalog of high-quality Matter IoT devices.

Additionally, a standardized solution allows the customer to embrace a mixed environment within their home or business without concern for incompatibility. This characteristic opens the market for more wireless products to be developed and spawns creativity among companies working towards real-world solutions.

Matter Certification and Security

Lastly, certification is important because Matter is built upon a framework of security and privacy. As innovation increases, so does security risk. Matter provides single internet protocol as part of its standardization. In contrast to a single IP solution, multiple IP solutions within an ecosystem create the propensity for increased cyber-attacks. Matter builds upon Wi-Fi and Thread technology by adding another layer of added security features to protect wireless Matter devices.

The expectation among consumers and workers of wireless products is that their information and privacy are kept safe and secure. Matter ensures that user safety is a critical piece within its architecture. Through standardization, shifting developers' focus to core competencies, and providing a secure ecosystem through a single IP, Matter certification is critical to any developer bringing new IoT devices into the wireless space.

Certification is advantageous to developers because an abundance of testing has gone into the work of creating Matter. As mentioned above, the development of Matter frees wireless device creators to focus on more device-specific functions and features of their products and solutions. The testing completed by Silicon Labs decreases the possibility that unanticipated issues arise, especially in the final stages of testing. For example, catching an app issue during the testing process instead of during the final stage of development is a key differentiator in certification. The testing process for Matter includes pre-test sample apps in anticipation of app testing by wireless device designers and engineers. By anticipating the pitfalls of development, Matter provides safeguards against potential failures.

An example of mitigating failures within the Matter certification process can be found in the commissioning stage of a device where the device is authenticated to confirm its integrity and compliance. The distributed compliance ledger records the status of all certified Matter devices and can be queried during commissioning to ensure the device will operate correctly.

By partnering with Silicon Labs through the Matter certification process, developers can also gain helpful insight on pre-certified chips for more effective product development. Because other wireless solutions such as Thread and Wi-Fi have been tested through similar processes, recommended and certified hardware can be leveraged by developers for more consistent results.

Developers can also have confidence that the testing and validation of Matter is completed with excellence and accountability. The [Connectivity Standards Alliance](#) (CSA) as a technology consortium provides oversight and resources for Matter's growth and entrance into the wireless market. The CSA is the standard resource in the innovation of IoT. Matter has been called "the apple of the CSA's eye" and is of special focus within its broader initiatives. By entrusting the CSA with this responsibility, Matter's success with and delivery of a unifying wireless solution is inevitable.

Matter is designed for developer success. Silicon Labs experts are available for questions and engagement to support a company's development of wireless technologies. Additionally, testing leads to increased success for any brand or company seeking to bring new products to the IoT market.

Matter certification is an advantage to companies building new wireless products because Matter technology has ease of use in mind for consumer satisfaction.

Security, interoperability, and standardization will be irrelevant to end users if the technology Matter produces does not lead to ease of use. As a Google spokesperson has said, "If you can't get the lights on through a wireless solution faster than flipping a switch, then what's the point?" Designed with users in mind, Matter brings a unified solution to a market focused on a user experience that's both pleasing and reliable. Certification will be critical to the success of those creating devices that will function effectively in a standardized wireless space.

Moving Forward with Matter Certification

Matter promotes interoperability across IoT devices and ecosystems via an IP-based solution. By creating a standardized solution, the wireless device market will thrive as creativity increases among technology companies and consumer and end user confidence in Matter's security soars. Testing and ease of use are advantageous to the success of a truly wireless home and workspace. As developers of IoT products engage Matter engineers and follow the certification process, the sky will be the limit on new technologies that will create a better and more secure world.

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