detect.

AVILOO MAGAZINE | AUTUMN/WINTER – 2025/2026



RISK BECOMES RETURN: INDEPENDENT BATTERY CERTIFICATES AS A SELLING POINT

How AVILOO is boosting the used EV market

→ Pages 6 & 7

INTERVIEW WITH AVILOO CEO MARCUS BERGER

→ Pages 4 & 5

HOW STUDIES CAN BE MISINTERPRETED

→ Pages 8 & 9

FACT CHECK SOH – WHAT THE REFERENCE VALUE REALLY SAYS

→ Pages 10 & 11

MORE MARGIN
ON EV SALES

You know the problem?
Selling and managing used EVs is incredibly challenging. Without clear data, the battery condition remains a mystery, pricing is uncertain, and your customer hesitates - with good reason.

With AVILOO, it's easy:
In just three minutes, you get an independent battery certificate that shows what your EV is really worth. Plug in, wait, impress – and earn trust.

More Trust
Strengthen your customer relationships sustainably.

Optimal Selling Price
Transparent battery assessment for maximum customer value.



Faster Sales
Less uncertainty, shorter time on the lot.

Maximum Transparency
Brand-independent diagnostics for all models.

PARTNERS WHO TRUST US:

ADAC · Alphartis · amag · ARVAL BNP PARIBAS GROUP · AXA · ayvens · BCA · Carla · Carspect · Cox Automotive · DAT · DIAGNO · ELBILMEK · Emil Frey · EUROMASTER · FTZ · HIBAG · GrafHardenberg · GTÜ · Hyundai · KESTENHOLZ · Mannheim Express · Mercedes-Benz Junge Sterne · mobile.de · NAF · OPENLANE · Pickles · Porsche Holding · ÖAMTC · Santander · sgfleet · smart · STERNAUTO · Tiemeyer Gruppe · TÜV SÜD · VAB · VIKING

Three Minutes. One Certificate.

Dear Reader,

As a pioneer and market leader in battery diagnostics, we make visible what was previously hidden. With our independent battery certificate, we offer our customers a transparent and precise assessment of battery health – a benefit for all market participants. What sets AVILOO apart from other providers of battery certificates is that we calculate the State of Health independently, rather than simply reading values from the vehicle's Battery Management System (BMS).



With our FLASH Test and the accompanying quality seal "AVILOO CERTIFIED," we have elevated battery diagnostics for electric vehicles to a new level. Verified safety through our battery certificate not only protects buyers from purchasing vehicles affected by cell defects but also provides a clear competitive advantage – as confirmed by customers such as Manheim Express and BCA.

In our role as the industry standard, we see it as our responsibility to look beyond the obvious – not only on a technical level, but also from a geographical perspective. After revolutionizing the used car market for EVs and plug-in-hybrids in Europe over the past years, we now aim to make our solution available to customers worldwide. Following successful expansion into Asia and Australia, our focus now turns to the United States. With the establishment of AVILOO Inc., we are not only making our presence known in the U.S. but also sending a strong signal in this major EV market: our battery analysis is an essential tool for the remarketing sector.

You can also always rely on our expertise: we help EV drivers overcome uncertainty and offer tips on how they can actively contribute to extending the lifespan of their EV battery. For example, we debunked the myth stemming from a misinterpreted study suggesting that sporty driving prolongs battery life – but you can read our detailed explanation in this issue.

Personally, I look forward with great anticipation to the coming months, during which we are already working on the next development steps to provide you with the best possible battery diagnostics for your vehicle. We plan to participate in over 30 events to incorporate your experiences and wishes into our daily work through direct conversations. In this spirit – let's shape the future of e-mobility together.



If you have any questions, we are here to help:

TELEPHONE: +43 2236 514 010
E-MAIL: info@aviloo.com

AVILOO HOMEPAGE

AVILOO BUSINESS



CEO INTERVIEW WITH MARCUS BERGER

„DEMAND FOR OUR CERTIFICATE IS GROWING MONTH BY MONTH“

AVILOO CEO Marcus Berger talks about the new battery certificate and its impact on the used EV market, expansion plans in the U.S., and how he plans to continue revolutionizing the EV industry with his company.

Let's start with a quick look back. It's been busy weeks for AVILOO, with the launch of the new battery certificate. What are your first impressions?

MARCUS BERGER: The idea behind the new battery certificate stems from our ambition to be a technology and innovation leader, and to always offer our customers the best possible product. The battery certificate is a substantial part of that. Our main goal was to significantly raise the quality of the FLASH Test Certificate and to set it far above what our competitors can offer. And very importantly: with the new battery certificate, we introduced a seal – AVILOO Certified. That makes us the only ones who don't just check a battery or read out values, but actually certify it with a seal of approval. The feedback we've received from our customers so far has been phenomenal – they love it. The level of information, the design – it's just perfectly in tune with the times.

What were the main goals behind launching this certificate?

BERGER: Our main goal is quality. Our certificate must convey quality and help our customers build trust in their field – the sale of electric vehicles. With a technological product like an EV, trust can only be built through high-quality products – in our case, the battery certificate. And that applies to both dealers and buyers.

Beyond the new certificate, a lot has happened in the first half of the year. Your sales managers attended numerous trade shows and events in various countries. Can we call it the ultimate AVILOO event spring?

BERGER: It was definitely the ultimate AVILOO event spring – not just for our sales colleagues, but also for our marketing team, who organized all these events so professionally. It shows how strong the industry's interest in our product is. In many cases, we were even invited by event organizers to give talks or inform the industry about our battery certificate. At times, we were present in Australia, Asia, the U.S., and Europe – all within a single week. So yes, we can definitely call it the ultimate event spring. But I'm confident we'll top it in the fall and winter.

A lot is happening at the company beyond that as well. Growth is accelerating rapidly. What other levers have you pulled?

BERGER: We're growing on all fronts. Over the past 18 months, we've more than doubled our team. As a result, we're massively expanding our office space to accommodate our new colleagues. We're also increasing our lab capacity, and due to high demand, we're building a second film studio to provide our customers with high-quality product demonstrations and online training using even more professional technology. All of this has essentially been made possible by the success of our battery certificates.his fall, we'll also be making some major strategic decisions. Our expansion into the U.S. has been so successful that we'll be significantly growing the team there as well. In addition, we're preparing for expansion into China. There are many ongoing initiatives around building a global sales partner network to bring our product to customers even faster. We're also working on new product ideas, which are still confidential. So all in all, we certainly won't be getting bored anytime soon.

You also mentioned expansion – how has that developed? Are there any markets that are booming in particular?

BERGER: In general, we can say that all markets are booming. All of Europe is booming, because in every country we're seeing a rapidly growing demand for an independent battery certificate. In addition to Europe, we've also had major successes in Asia and Australia. We're currently expanding very strongly and rapidly in Australia, but also in Japan and Korea. Our certificate is extremely popular globally, and demand continues to rise month by month – the interest remains high.

Which new customers have you recently welcomed?

BERGER: For example, we've won Pickles, the largest auction house in Australia. In Europe, we've also welcomed some well-known customers, including Porsche Holding, the Volkswagen Retail Group in Germany, and Ayvens – one of the world's largest leasing companies.

Earlier, you mentioned the U.S. What's the current status?

BERGER: Last year, we founded AVILOO Inc. in the U.S. and hired our first employee. When it comes to electromobility, the U.S. is still a few years behind Europe. In other words, the market penetration of electric vehicles is still significantly lower there. Nevertheless, the core issues are the same – American customers also want clarity and certainty when it comes to battery health, and therefore need an independent battery certificate. Simply reading out a BMS State of Health isn't enough for them either. That's something only we can deliver. So yes, we will significantly expand our U.S. presence. We're looking to bring new colleagues on board to help drive our expansion in the U.S., and we're very confident that we'll succeed.

Can potential customers in the U.S. experience the product firsthand?

BERGER: We'll be attending all the major industry events, such as the Digital Dealer Conference & Expo, Used Car Week, and the NADA Show – all in Las Vegas. There will also be a major marketing initiative to reach as many people as possible. In the coming months, we'll significantly ramp up our service presence. So yes, full focus on the U.S.

You often say that customers need to be educated about battery health. How do you see the current development of electromobility?

BERGER: I believe electromobility will continue to gain ground. In the beginning, it was often dismissed and heavily driven by subsidies. Many governments wanted to accelerate the transition with generous incentives. In recent years, many of those subsidies have been phased out, which led to a temporary dip in demand – but that has now more than recovered. This shows that electromobility is becoming mainstream. It might be progressing a bit more slowly than originally hoped, but that's perfectly fine. New technologies need time so that people can get used to them and not feel overwhelmed. Also, EVs are becoming more affordable, which is crucial. There's no point in launching a € 50,000 vehicle if 90 % of the population can't afford it.

You mentioned earlier that many EVs have been unaffordable for the general public. That makes it even more important to establish a functioning used car market, isn´t it?

BERGER: Absolutely! For many customers, the battery is still a black box. That's why an independent battery certificate is a key selling point – especially for customers who are still unsure. As you rightly said, new electric vehicles are unaffordable for many people – just like new combustion vehicles, by the way. But with EVs, the battery is the big unknown, unlike combustion engines, which have over 100 years of history. With a two-year-old VW Golf and 30,000 km [18,64 miles] on the clock, the used car value is well established. But with EVs, we don't have that kind of experience yet. And the big issue is that battery condition doesn't just depend on age and mileage – it's influenced by many other factors. That's what makes the battery a black box. We open that box and make it visible how the previous owner treated the battery – which also helps determine a fair price. An EV with a high, independently verified State of Health (SoH) will naturally command a significantly higher resale price than one with a lower SoH.

So driving behavior determines battery health?

BERGER: Driving behavior, charging behavior, parking behavior – all of these factors play a role. For example: at what state of charge do I park my car? A car typically sits parked for 23 hours a day, and it makes a big difference whether it's parked at 80 % or 40 % charge. It also matters whether I'm speeding down the highway at over 130 km/h [81,77 miles/h] or cruising at 80 km/h [50 miles/h] two-year-old. And of course, the temperatures the car is exposed to are also important. We make all of that visible and help consumers decide which car is right for them. But it's also important to say that EVs with a lower-than-expected SoH should still have a place in the market. It would be a shame to discard a perfectly usable vehicle just because its SoH is lower. There are many people whose driving needs can still be met by such a car. It just needs to be priced fairly. Our goal is to keep EVs in the market significantly longer through transparency – much longer than would otherwise be the case.

So that means car dealerships and their sales staff need to be trained to understand these factors and provide the best possible advice to customers?

BERGER: Exactly. Most car dealers have spent decades selling combustion vehicles. So when there's a technological shift like this, it's essential to equip the industry with the right expertise. After all, how would they know otherwise? This applies to any profession facing a technological transformation – the automotive trade is no exception. We want to support our customers on their journey into electromobility and transfer the knowledge they need to answer potential buyers' questions confidently and eliminate uncertainty during consultations.

You mentioned it – how are customers supported along this journey?

BERGER: As a company, we offer a range of services. Of course, we start with a product demo to show that our test is easy for anyone to use. We also provide comprehensive training materials through our AVILOO Academy, which are available to all our customers free of charge. On top of that, we have a highly competent customer support team – now five people strong – who assist with any inquiries. So we're doing our best to ensure our customers have the technical knowledge they need for their daily work.

If you had to give a brief outlook: what are you most looking forward to when you think about the year ahead with AVILOO?

BERGER: What I'm most excited about is that we'll continue to improve our battery diagnostics, building on the high quality standard we've already achieved with our battery certificate. We're collecting an incredible amount of battery-relevant data, which makes our analysis more and more precise. We'll also be adding new features to our product that are especially important for the automotive trade – though I can't reveal them just yet for confidentiality reasons. What I can say is: it's going to be exciting, and you can definitely look forward to it. So stay with us!

NEW BATTERY CERTIFICATE

RISK BECOMES RETURN: INDEPENDENT BATTERY CERTIFICATES AS A SELLING POINT

Since June 2025, AVILOO customers have benefited from an even more precise and intelligent battery diagnostic system that not only brings greater transparency to the used EV market, but also turns the often-cited obstacle of the EV battery into a true selling point—thanks to the independent battery certificate.

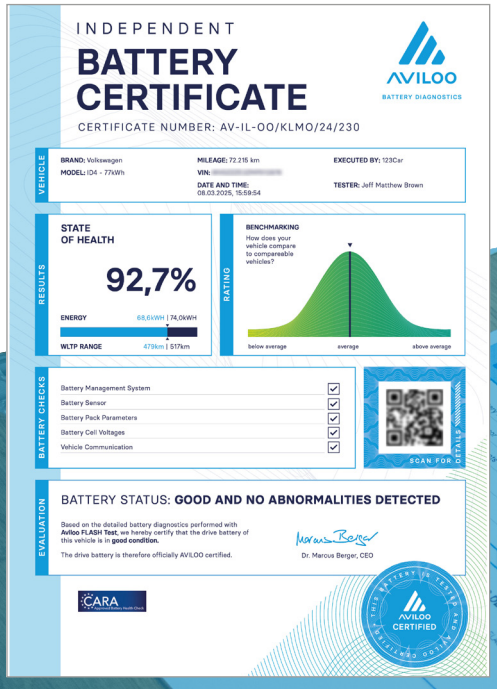
The electric vehicle market is evolving at a remarkable pace. Alongside the surge in new EVs, used electric cars and plug-in hybrids are becoming increasingly attractive to buyers. This shift brings a growing demand for transparency, safety, and clarity—especially when it comes to battery health, the most critical factor in determining the value and reliability of a used electric vehicle.

A NEW STANDARD IN BATTERY DIAGNOSTICS

AVILOO has responded to this challenge with a pioneering solution: independent battery diagnostics that go far beyond conventional readout methods. Unlike traditional BMS data providers, AVILOO's technology can detect potential damage down to the cell level, delivering a significantly more precise and trustworthy assessment. To further increase transparency in the market, AVILOO introduced the AVILOO CERTIFIED battery certificate. This certificate is awarded to vehicles that pass the FLASH Test — a fast, user-friendly diagnostic test that provides reliable results in just three minutes. If the battery shows no irregularities, the vehicle receives the AVILOO CERTIFIED seal, offering buyers confidence and giving sellers a strong unique selling proposition.

INDEPENDENT AND ACCURATE BATTERY ASSESSMENT

What sets AVILOO apart is its independent calculation of the battery's State of Health, rather than relying on values extracted from the vehicle itself. This ensures an objective and accurate assessment that cannot be achieved through standard methods. The FLASH Test uses AI-trained adaptive models to deliver intelligent and reliable diagnostics for EV batteries. The certificate brings clarity to a market often perceived as confusing and inconsistent, helping buyers avoid costly mistakes and enabling sellers to present their vehicles with confidence. Additionally, thanks to the benchmarking model, customers receive a valid assessment of how their vehicle's battery compares to batteries in similar







vehicles. AVILOO offers the broadest vehicle coverage available on the market—currently covering over 96 percent of common electric and plug-in hybrid vehicles (EVs and PHEVs).

STUDY-DRIVEN IMPACT AND MARKET VALUE

The effectiveness of AVILOO's certification is backed by compelling data from its international Remarketing Study conducted in 2024. The study revealed that buyers are willing to pay significantly more — between € 550 and € 1.100—for a used EV that includes a certified battery report. It also showed that more than half of potential buyers who previously preferred new EVs would consider purchasing a used one if an independent certificate were available, increasing the pool of interested buyers from 61 % to approximately 83 %. Furthermore, the likelihood of selling a certified vehicle rises by around 36 %, underscoring the certificate's impact on market dynamics. For dealerships, the benefits are even more pronounced, with 81 % of customers reporting higher levels of trust in dealers who offer battery certification.

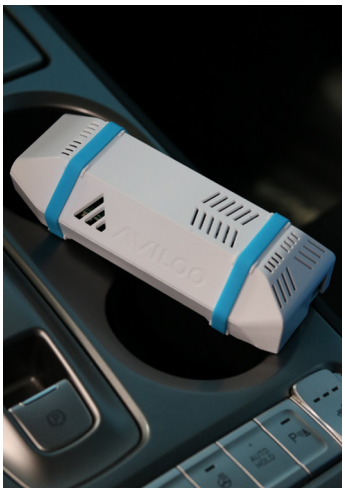
REAL-WORLD SUCCESS WITH AVILOO PARTNERS

AVILOO's impact is already visible in the market. Manheim Express Europe, for example, recorded a 29.3 % increase in bids per vehicle, a 22.4 % rise in active bidders, and a 33.4 % boost in sales conversion — all within just nine months of integrating AVILOO's certification into their sales process. Similarly, BCA reported up to a 50 % increase in click-through rates when listings included AVILOO battery certificates. A survey conducted by mobile.de confirmed that over 60 % of respondents felt that a battery certificate would positively influence their trust and purchasing decision[1].

A CLEAR ADVANTAGE FOR THE EV MARKET

As Marcus Berger, CEO of AVILOO, explains, the uncertainty surrounding battery condition, the single most important factor influencing a vehicle's residual value, remains a major obstacle for many buyers of used EVs. AVILOO's test solutions close this gap, offering security for buyers and increased profitability for resellers. The certification simplifies the buying and selling process, making used EVs easier to compare and helping to avoid costly mistakes. In a market where trust and transparency are paramount, AVILOO's independent battery certification provides a clear and measurable advantage. It empowers buyers with confidence and gives sellers a compelling tool to stand out in an increasingly competitive landscape. For anyone involved in the resale of electric vehicles, AVILOO is setting a new standard for quality, reliability, and trust.







[1] Mobile.de: MIIOS Survey (Juni 2025).



Peter Bednarik, Head of Research & Data Science

HOW STUDIES CAN BE MISINTERPRETED

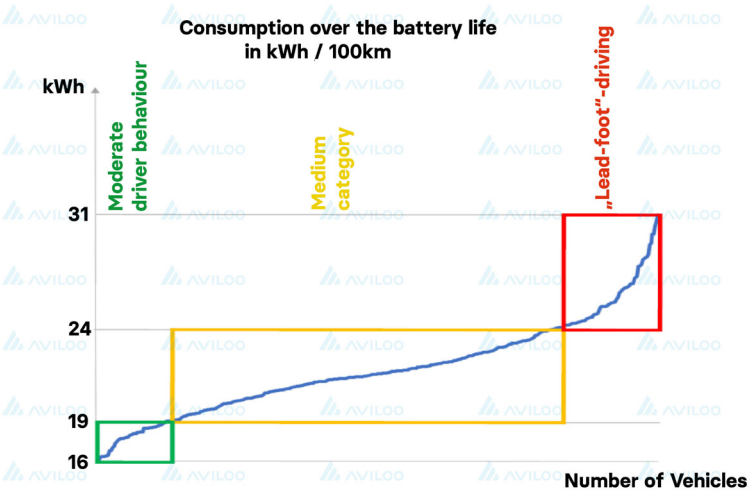
MISINTERPRETATION: SPORTY DRIVING DOES NOT EXTEND THE LIFESPAN OF EV

In summer 2025, the study "Dynamic Cycling Enhances Battery Lifetime" (Nature Energy, Dec. 2024) was picked up by several media outlets, which mistakenly concluded that sporty driving extends the lifespan of EV batteries. AVILOO clarifies this with its own study.

In summer 2025, several published articles sparked debate by claiming that a sporty driving style prolongs the life of EV batteries. This was based on the study "Dynamic Cycling Enhances Battery Lifetime", published in December 2024. The study compared two types of stress tests in the lab – constant current cycles (which occur only in laboratory settings) versus dynamic charge and discharge profiles that resemble real-world driving. The core message: lab tests using constant current overestimate battery aging because real-world usage involves more dynamic current flows. This is essential for battery research – but irrelevant to actual driving behavior.

TECHNICALLY INCORRECT AND PRACTICALLY UNSUBSTANTIATED

This interpretation is misleading – both technically incorrect and practically unsubstantiated. As a leading provider of battery diagnostics, AVILOO felt responsible to correct this misconception and clarify what the study actually states – especially in the context of sustainable EV usage. For this reason, AVILOO conducted a large field study on driving behavior and battery aging, involving 402 vehicles of the same brand and battery type. The study recorded energy consumption in kWh per 100 km [62 miles].



KEY FINDINGS FROM AVILOO'S FIELD STUDY:

- Moderate driving behavior: consumption of **16–18 kWh/100 km** [16-18 kWh/62 miles]
- "Lead foot" driving style: nearly double the consumption **(approx. 30 kWh/100 km**) [30 kWh/62 miles]
- SUV category: additional consumption of up to **9 kWh/100 km** [9 kWh/62 miles]

AVILOO CTO Nikolaus Mayerhofer explains:

"As our study shows, moderate driving behavior saves 10 % energy over the vehicle's lifecycle. For example, 100,000 kilometers [62,137 miles] ***driven sportily are comparable to 110,000 kilometers*** [68,350 miles] ***driven moderately."***

SPORTY DRIVING = FASTER DEGRADATION

Media outlets falsely inferred that sporty driving – so-called "dynamic driving" – could be beneficial for battery health. This interpretation is simply incorrect. The reason is provided by Peter Bednarik, Head of Research & Data Science at AVILOO:
"The study was not about everyday driving behavior, but about laboratory testing methods."

In practice, sporty driving leads to:

- Up to twice the energy consumption
- Significantly more charging cycles
- Faster battery aging

AVILOO'S RECOMMENDATION: EFFICIENT, NOT AGGRESSIVE

To significantly reduce energy consumption and charging cycles, EV drivers should follow these tips for sustainable battery usage:

- **Driving style:** smooth, anticipatory, and economical
- **Preconditioning:** only while plugged in – optimize in both summer and winter
- **Charge levels:** avoid long idle times at high charge levels (>80 %)
- **Fast charging:** use only when necessary
- **Temperatures:** avoid parking at very high or very low temperatures





Nikolaus Mayerhofer, CTO

CONCLUSION

As AVILOO's findings show, the media interpretations were unfounded. The study merely suggested that lab methods overestimate real-world battery aging – not that sporty driving protects the battery. On the contrary: higher consumption stresses the battery more. "The fact is: higher energy consumption puts more strain on the battery – that cannot be reinterpreted," says Bednarik.

FACT CHECK SOH – WHAT THE REFERENCE VALUE REALLY SAYS ABOUT THE CONDITION OF AN EV BATTERY

The health status of an electric vehicle's battery is often the biggest question mark for potential buyers. The so-called SoH (State of Health) is intended to provide clarity – but what does this value actually indicate? And how is it determined? AVILOO explains.

The battery health of an electric vehicle remains one of the most uncertain factors for potential buyers. The SoH (State of Health) was introduced as a value to indicate the current condition of the battery, making it an important indicator. However, it's important to note that SoH cannot be directly measured. Instead, it reflects the battery's condition in relation to its original state. What many don't know is that there are different ways to calculate SoH. On one hand, there are various reference values, and on the other, different methods of analysis depth and interpretation – here's a brief overview:

CAPACITIVE SOH

One possible reference value for SoH is the battery's capacity. The capacity of a cell indicates how many ions or electrons are available for storage, measured in ampere-hours. The advantage of capacitive SoH is that, in theory, it is independent of temperature and driving behavior – however, in practice, temperature and measurement cycles significantly influence the results, and internal resistance is not considered. "An increased internal resistance reduces the vehicle's range, which especially in older vehicles leads to capacitive SoH being inaccurate and typically higher than when using another reference value," explains AVILOO Chief Product Officer Patrick Schabus.

ENERGETIC SOH

The usable energy of a battery determines the vehicle's range and is therefore the best reference value. Energy is measured in kilowatt-hours (kWh). The biggest advantage of energetic SoH is its clarity: 90 % SoH means 90 % of the original range is still available. This is not possible with other reference values. The main disadvantage lies in the complexity of the calculation – since usable energy depends on temperature and the load profile. "To determine a meaningful energetic SoH, the conditions under which the energy is usable must be specified. For vehicles, the exact load profile is defined by the WLTP cycle at 23 degrees Celsius," says Schabus.

Another theoretical measurement method is **internal resistance,** but this is not used in vehicles because it does not provide information about range. Beyond the distinction between capacitive and energetic SoH, there are also different methods for calculating SoH.

PACK-LEVEL CALCULATION

The simplest method is to determine battery health directly from the entire pack, which is very imprecise. This is because energy can only be drawn from the battery as long as each individual cell operates within its specified range. This can only be roughly estimated here, as the major drawback of this method is the lack of information about the health of individual cells.



Patrick Schabus, Chief Product Officer

CELL-LEVEL CALCULATION

When SoH is determined at the cell level, the State of Charge (SoC) of each individual cell must be assessed. A major advantage of this approach is that the balancing status of each cell can also be identified. Three methods are used to determine the overall pack SoH:

- **Average Cell:** Often, pack SoH is calculated from the average of cell SoHs. This method is not recommended, as it can lead to significant discrepancies between SoH and actual range.

- **Weakest Cell:** When determined by the weakest cell, this cell automatically defines the overall SoH. This is comparable to a chain where the weakest link determines the strength – and is therefore much more accurate than the average method.

- **State of Certified Energy (SoCE):** A few words on SoCE – this comes from GTR22 and represents a more precisely defined SoH. Its stated goal is to accurately represent the current range of a vehicle as a percentage of its original state

To achieve this, AVILOO uses an energetic SoH at the cell level, from which the pack SoH is ultimately determined using the weakest cell and the balancing status of the cells.



CONCLUSION

As shown, there are many ways to determine SoH – from reference values to calculation methods. Therefore: SoH is not always equal to SoH. Customers and dealers should not blindly trust the stated value but instead verify the actual range. In case of uncertainty, an independent battery test is recommended.

RELIABLE AND PRECISE SOH THANKS TO AVILOO BATTERY TESTS

Calculating SoH is complex – and often misunderstood. AVILOO brings clarity and offers a new level of transparency with its battery tests. Whether through in-depth analysis with the PREMIUM Test or quick assessment with the FLASH Test, AVILOO provides reliable data that truly matters – for dealers, fleet managers, and EV owners alike.

After explaining the fundamentals of SoH calculation, AVILOO now offers deeper insight into how its battery tests ensure transparency and clarity.

PREMIUM TEST

– THE MOST IN-DEPTH BATTERY ANALYSIS ON THE MARKET

The AVILOO PREMIUM Test, currently available exclusively in Europe, is the most accurate and comprehensive battery analysis product on the market. During the test drive, key signals such as current, cell voltage, and various temperatures are measured at a high sampling rate and transmitted to the AVILOO Cloud. The data is then processed and analyzed using AVILOO's software.
Essential parameters such as internal resistance, time constants, and open circuit voltage curves are identified – made possible because AVILOO measures vehicle modules in its own cell lab and creates initial cell models.



This model allows the state of charge for each cell level to be determined throughout the entire test drive – a crucial factor, as the Battery Management System (BMS) does not provide sufficient accuracy for precise battery analysis. The derived model aligns with the SoCE methodology, resulting in the highest accuracy and a match with the vehicle's actual range.

WHY THE AVILOO PREMIUM TEST IS MORE RELIABLE THAN THE MANUFACTURER'S SOH

Independent: Manufacturers may have a conflict of interest when it comes to accurately presenting the SoH (e.g., in relation to warranty claims).

Consistent: There is no universally accepted standard for calculating SoH. As a result, different manufacturers use different methods that are not comparable. The AVILOO PREMIUM Test has been using the same proven method across all vehicles for over five years.

Stable: Depending on the manufacturer, the BMS-based SoH is often adjusted based on temperature and driving style. While this may help estimate current range, it negatively affects the consistency and reliability of the SoH value.

FLASH TEST –

FAST, EFFICIENT, AND ACCURATE IN JUST 3 MINUTES

The AVILOO FLASH Test is based on an innovative approach to quickly determine battery health, using insights and data from the PREMIUM Test. Unlike the PREMIUM Test, the FLASH Test uses an existing database of tens of thousands of completed PREMIUM Tests. From these datasets, predictors such as age, mileage, and (fast) charging behavior are derived.

These predictors are then used to train a machine learning model – simply put, the algorithm learns from known relationships between the measured predictors and the precisely determined SoH values from the PREMIUM Test. Thanks to the trained models, it is possible to determine a battery's SoH without full discharge. This makes the FLASH Test especially suitable for scenarios where quick results are needed.

FEATURES OF THE AVILOO FLASH TEST

Data-Driven: It relies on a large and high-quality data base, enabling robust model development.

Efficient: Since no full driving cycle measurement is required, the duration is significantly reduced – to under 3 minutes.

Transferable: Thanks to machine learning algorithms, the test can be applied to various vehicle models and battery types.

AVILOO BOX

Both the PREMIUM and FLASH Tests are performed using the AVILOO Box. In addition to the AVILOO Box, the classic AVILOO Case also contains connection cables including DoIP, which now covers over 96 % of all electric vehicles.



TOPIC FOCUS

DEGRADATION

The ageing of vehicle batteries is not a mystery, but rather something that can be measured. AVILOO battery tests allow you to precisely determine the actual state of health (SoH) of your battery. And best of all, you can actively influence its service life. Find out here why it is crucial to take a measurement immediately after purchasing a vehicle and a second one after 20,000 kilometres, and how degradation processes differ.

SIMPLE STRATEGY FOR DETECTING ACTUAL BATTERY DEGRADATION

Yes, dear EV drivers, you have a significant influence over the aging and degradation of your valuable vehicle battery. The good news is that you can very easily monitor the aging process of your EV's battery and optimize it through your behaviour. With AVILOO battery tests – PREMIUM or FLASH Test – you can not only determine the current State of Health (SoH), but also explore the aging process of your EV battery. Read on to learn which specific aspects and facts you should pay attention to. We have developed calculation models based on AVILOO Big Data and conducted numerous real-life measurements, which have provided us with valuable insights into battery aging and led us to formulate recommendations for you. The measurement graphs shown below (depicting real vehicle analyses) illustrate different types of aging phenomena, including some with linear and others with sharply declining degradation curves.

THE IMPORTANCE OF THE INITIAL VALUE – WHY EARLY BATTERY TESTING MATTERS

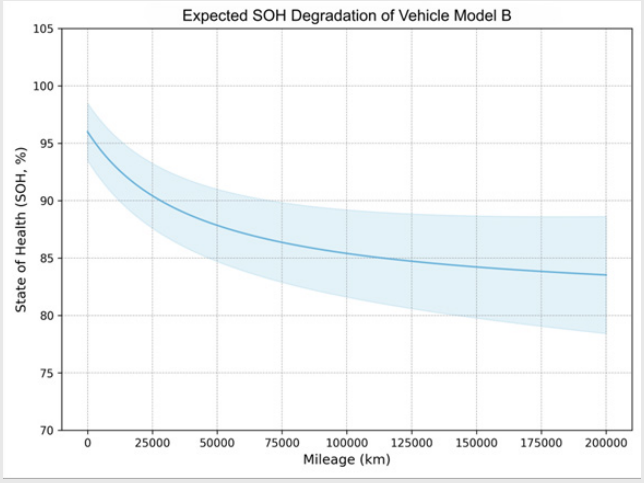
Point 0 on the mileage axis in our graphs represents the new condition of the vehicle (graph for Model A). In practice, our AVILOO measurements show that the State of Health (SoH) indicated by the manufacturer often does not start at 100 %. It's important to distinguish between two scenarios. For some vehicles, the average SoH is already below 100 % at the time of purchase. The reasons for this can only be speculated. Possible explanations include: Unrealistically optimistic values of individual cells are extrapolated to the entire battery, causing the actual SoH to appear too low in real-world measurements. Conversely, manufacturers might intentionally understate values for warranty reasons, resulting in an SoH that appears too high. This can be seen in the graphs when the blue centerline at the new condition deviates from 100 %.
Another reason for SoH values being too low or too high at the start is accepted manufacturing tolerances in cell capacity. Some batteries may store more or less energy than stated when new. This tolerance range is illustrated in the following graphs as a light blue band around the centerline. Because of these variations, it's crucial to carry out an initial, independent measurement using an AVILOO PREMIUM or FLASH Test right when the vehicle is acquired. This provides a reliable baseline for evaluating battery aging and makes future measurements meaningfully comparable. Only by knowing the exact initial SoH value can the progression of degradation be assessed with accuracy. A representative degradation curve can only be determined after a second measurement, ideally after at least 20,000 km [12,427 miles].



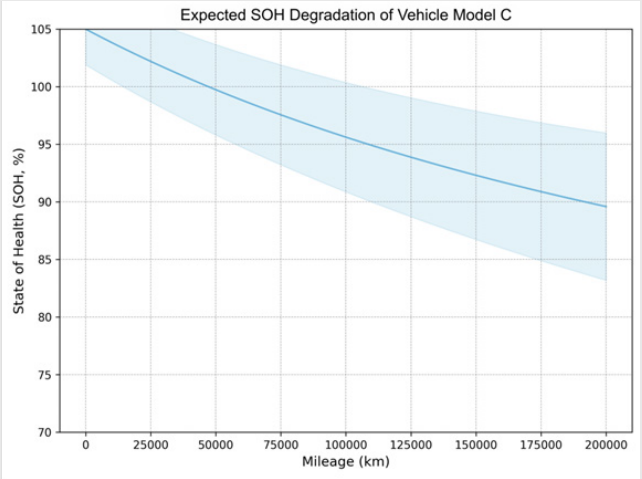
GRAPH FOR MODEL A: Model A exhibits a "classic" aging curve. When new, the State of Health (SoH) is, as expected, at 100 %, with a spread of approximately ± 3 %. During the first 50,000 km, there is a somewhat accelerated aging process, which then transitions into a linear aging pattern up to 200.000 km. Beyond that point, the aging rate stabilizes at approximately 3 % per 100.000 km.

THE SECOND MEASUREMENT FOR A VALID DEGRADATION ANALYSIS

Battery degradation does not occur in a linear fashion. During the first years of operation, it can decline relatively steeply before reaching a more stable phase. To make an accurate assessment of battery wear, a second measurement after a minimum of 20,000 km [12,427 miles] is necessary. Only through this comparison can the actual degradation rate be determined. The graph for Model B illustrates this



GRAPH FOR MODEL B: Model B exhibits a similar aging pattern to Model A. However, on average, it does not reach the storable energy specified by the manufacturer, resulting in the aging curve being lowered by approximately 4 %.



GRAPH FOR MODEL C: Model C behaves contrary to Model B in its new condition, but then exhibits an almost linear aging curve from the very beginning. As a result, an overall higher degradation rate of 6 % per 100,000 km [62,137 miles] must be assumed.

with an example: If the manufacturer indicates an SoH of 100 % at the beginning, but the AVILOO measurement shows a real value of 97 %, this creates a crucial difference in evaluating degradation at the time of the second reading. If, after 25,000 km [15,534 miles], an SoH of 91 % is measured, this does not necessarily mean a loss of 9 percentage points, but only a 6 percentage point drop - based on the actual initial value. The graph for Model C shows the contrary behaviour. A word of explanation for correctly interpreting our graphs: As previously mentioned, the light blue area represents the variation in State of Health (SoH) among different vehicles of the same type. It becomes apparent that this variation increases with higher mileage, and this is where user behaviour comes into play.
The light blue area reflects the 95 % confidence interval - meaning 95 % of vehicles fall within this range, while 5 % lie outside of it. The outliers typically include vehicles with serious defects or replaced batteries. To ensure that you're not purchasing such a vehicle, it is highly recommended to perform at least an AVILOO FLASH Test before buying.

BENEFITS OF DEGRADATION MEASUREMENT AND RECORDING FOR NEW CAR OWNERS AND USED CAR BUYERS

This methodology offers several advantages:

- **For new car customers:** An initial AVILOO measurement of the starting value makes it possible to accurately track degradation over time.
- **For resale:** A documented degradation curve increases both the credibility and value of an EV on the used car market.
- **For used car buyers:** A transparent history of battery health provides confidence and serves as a significant quality criterion when purchasing.

PREDICTIVE MODELS FOR DEGRADATION AND LIFESPAN

AVILOO's engineering experts are already working intensively on the development of models that, through the analysis of specific predictors, will enable forecasts of future battery degradation and State of Health (SoH) trends - referred to as the "Expected Remaining Lifetime."

FAZIT

To accurately assess EV battery aging and degradation, conducting a State of Health (SoH) test when the vehicle is new - or at the time of purchasing a used vehicle - is essential. If a second independent AVILOO measurement is performed after a minimum of 20,000 km, using either the PREMIUM or the FLASH Test, a valid comparison of values becomes possible, enabling insights into the battery's development over time. The combination of the respective actual SoHs forms the degradation curve, which allows conclusions to be drawn about the adequacy of the battery's treatment.



NEW PARTNERSHIPS

INDEPENDENT BATTERY CERTIFICATE AS A QUALITY FEATURE

In recent months, AVILOO has once again welcomed numerous new partners. From major auction houses and associations to resellers and renowned OEMs, trust is being placed in the independent battery diagnostics provided by the market leader.

Interest in independent, high-quality battery certificates remains strong and continues to grow.This has also been reflected in recent months through new partnerships with renowned names in the used EV market, who have joined forces with AVILOO, the industry standard for battery analysis.

TRUST AND TRANSPARENCY AS KEY SELLING POINTS

AVILOO recently became a partner of smart Europe, which has integrated the independent battery certificate into its smart certified used car program, already successfully launched in Germany. ***„Through our partnership with AVILOO, we offer our smart customers maximum transparency and trust regarding the performance of their vehicle battery. Thanks to precise measurement and certification of battery performance, they gain confidence, reliable data, and peace of mind when purchasing a smart used car,“*** explains Aymen Ismail, Customer Services Director at smart Europe.

The Emil Frey Group, the leading provider in the Swiss automotive trade, also relies on AVILOO's battery certificate and emphasizes the technological advantage of the diagnostic method over conventional system readers: ***„As one of the leading providers in the automotive trade, we want to offer our customers maximum safety and transparency – especially when purchasing used electric vehicles. The AVILOO FLASH Test is fast, simple, and reliable, helping to build trust and establish quality standards in the market.“***

In the German-speaking region, the Zentralverband Deutsches Kraftfahrzeuggewerbe (ZDK) – one of the largest industry associations – is also convinced of the importance of independent battery certificates and sees their use as an essential tool for its members and partner businesses. ***„The new, improved AVILOO FLASH Test will help our automotive businesses to more easily identify and resolve technical issues through deeper analysis,“*** says ZDK Vice President Thomas Peckruhn, adding: ***„Even more precise and comprehensive battery diagnostics will contribute to greater safety and transparency in the growing market for used electric vehicles and plug-in-hybrids.“***

STRATEGIC PARTNERSHIPS IN DOWN UNDER

In Australia, strategically important partnerships have recently been established. With over 850 employees, Pickles is one of the country's largest auction houses and remarketing companies for EVs. In July 2025, Pickles announced its collaboration with AVILOO. By publishing the SoH (State of Health) of all tested vehicles on its sales platform, Pickles became the first company in Australia to offer this service to its customers. ***"Battery health is very important in an electric vehicle. It determines resale value, driving range, and long-term reliability. This move gives buyers – especially dealers – real certainty, not guesswork."***, says Brendon Green, General Manager.

"AVILOO BATTERY CERTIFICATION AS A CENTRAL PART OF OUR STRATEGY"

Starting in September, another renowned auction house in Australia – Manheim Australia (part of the COX Automotive Group) – began offering the AVILOO FLASH Test to its customers.

„The research we see shows that a key concern for prospective used EV buyers – both dealers and the public – is the health of the battery, both for the now and for the future.", explains Mike Costello, Corporate Affairs Manager and Analyst at Manheim Australia. ***„We believe auction buyers will come to expect independent battery health assessments attached to EVs they are looking to bid on, so we see the AVILOO Battery Certification as key to our wider EV strategy."***

AVILOO CEO Marcus Berger emphasizes the importance of every customer and is pleased with the strong interest in AVILOO's diagnostic method:

„The uncertainty about the condition of the battery – the most important factor influencing the residual value of a vehicle – is a significant challenge for many buyers of used electric vehicles. We want to create clarity in the global market for used EV and plug-in hybrid vehicles, both for dealers and potential buyers. Therefore, we are very pleased to have found strategically important partners in numerous countries. We are confident that through these partnerships, we have taken another step towards elevating battery diagnostics worldwide to a new level."



Marcus Berger, CEO

An exciting new collaboration has recently been established with CARERMA. The app developed by the Austrian company automatically removes backgrounds from vehicle photos within seconds and, thanks to API integration, uploads them directly to the desired sales platforms. Through the partnership with AVILOO, customers also receive a visual preview of the battery certificate, provided a FLASH test result is available.

PARTNERS WHO TRUST US:



AVILOO MOVES WORLDWIDE

INNOVATION KNOWS NO BOUNDARIES

Over the past few months, AVILOO has participated in numerous trade fairs and events across the globe, gaining valuable partners and convincing customers worldwide of AVILOO's smart battery diagnostics.

These months have been marked by international presence, exciting encounters, and inspiring moments. As a pioneer in independent battery diagnostics, we were honored to be part of many prestigious events around the world – from Berlin and Paris to Sydney. This diversity not only reflects our global orientation but is also a core part of our company philosophy. Because we firmly believe: direct exchange with customers, partners, and industry experts is the key to progress – both technologically and personally. New perspectives, fresh ideas, and personal conversations fuel our mission: to actively shape the future of battery diagnostics.

GLOBAL STAGE FOR STRONG VOICES

Our leadership team has represented AVILOO impressively on international stages. For example, our CMO Johannes Huber captivated the audience at autobuzz in Berlin with a compelling presentation on the future of battery diagnostics. In Paris, COO Wolfgang Berger led a hands-on workshop at EMVO, offering deeper insights into the application of our technology. Things got especially practical at the mobile.de Masterclass, where Michael Schneider explained the difference between conventional data reading and true diagnostics in a lively panel discussion. Participants experienced the FLASH Test live – and could admire the results on their own vehicles after just three minutes. CTO Nikolaus Mayerhofer also impressed with a presentation at VAB in Brussels, where he introduced AVILOO's Smart Diagnostics. Other highlights included our roadshows and conversations at the AFMA Tradeshow in Sydney and autopromotec in Bologna – two events that powerfully showcased our international reach.

AWARDS AND RECOGNITION

In addition to exciting events, we were also honored with significant awards. At NextRise in Korea, AVILOO received the "Rise Innovator Award" – recognizing us as a "Rising Star" among Austrian startups. We're also setting new standards in the electric vehicle trade: winners of the "Golden Battery" are successfully using our new battery certificate and are thrilled with its transparency and clarity.

FULL SPEED AHEAD INTO THE FUTURE

With all these impressions, we continue our journey – motivated, inspired, and full of drive. Our goal is clear: we want to revolutionize battery diagnostics worldwide. In Europe, Australia, and Asia, we've already built strong partnerships. Now, we're turning

our attention to America: soon, we'll be present in Mexico and Las Vegas, where we aim to sustainably transform the EV market. AVILOO stands for a future in which electric vehicles can be evaluated transparently, safely, and reliably. We're always available for exchange through our website and our Customer Support Team – reachable at help@aviloo.com.



EMVO, PARIS



WINNER OF THE „GOLDEN BATTERY" AWARD



AFMA TRADESHOW, SYDNEY



VAB, BRÜSSEL

TECH SHOW-VIDEOS HERE

IMPRESSUM

AVILOO Detect Magazine
Edition: #3 Autumn/Winter 2025/2026

Publisher:
AVILOO GmbH
IZ NÖ-Süd, Straße 16, Objekt 69/5
2355 Wiener Neudorf, Österreich
UID Nr.: ATU 737 81605

Phone: +43 2236 514 010
E-Mail: info@aviloo.com

Editing: Uwe Blümel

All Photos: AVILOO

Note: For the sake of better readability, we refrain from using gender-specific punctuation or special characters in our texts and instead use the masculine form. However, all personal terms refer to individuals of all genders.

AVILOO

BATTERY DIAGNOSTICS

connect to detect



AVILOO: TURNS BATTERY RISK INTO YOUR STRONGEST SELLING POINT

- → **Independent & instant – confidence in 3 minutes:** The AVILOO FLASH Test provides manufacturer-independent cell diagnostics and a battery certificate in just three minutes.
- → **AI-supported – predicting problems:** With the largest EV battery database, AVILOO detects anomalies early on and makes risks calculable.
- → **Certified & trustworthy – market benchmark:** ISO-accredited and used by leading OEMs, AVILOO stands for tested quality.
- → **Proven market success – faster deals:** AVILOO-certified vehicles sell faster, at better prices and with fewer complaints.

