Prüfbericht-Nr.: *Test Report No.:*	**IT26DDPK 001**	**Auftrags-Nr.:** *Order No.*	0080003788 0234242849	Seite 1 von 24 *Page 1 of 24*
Kunden-Referenz-Nr.: *Client Reference No.*:	2769376	**Auftragsdatum:** *Order date*:	May 19th 2026	
Auftraggeber: *Client*:	APTERA MOTORS Corp. 5818 El Camino Real, Carlsbad CA 92008, USA			
Prüfgegenstand: *Test item*:	VEHICLE PV SYSTEM			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*:	APTERA ATLAS 1			
Auftrags-Inhalt: *Order content*:	The scope of the engagement is to witness and independently verify that the Aptera solar electric vehicle, parked in direct sunlight under ambient outdoor conditions, accumulates a minimum of 4.0 kWh of usable energy delivered to the high-voltage battery pack over the course of a single calendar day.			
Prüfgrundlage: *Test specification*:	On-site witnessing service			
Wareneingangsdatum: *Date of receipt*:	July 6th 2026			
Prüfmuster-Nr.: *Test sample No.*:	A004358920-001			
Prüfzeitraum: *Testing period*:	July 6th, 7th, 8th 2026			
Ort der Prüfung: *Place of testing*:	Aptera facility (Carlsbad, California, USA)			
Prüflaboratorium: *Testing laboratory*:	TÜV Rheinland Italia S.r.l. Via Mattei 3 - 20005 - Pogliano Milanese (MI) IT			
Risultato dei test: *Testing results:*	See below			

geprüft von / *tested by*: Giorgio Bardizza

kontrolliert von / *reviewed by*: Mario Comboni

Datum *Date*	Name / Stellung *Name / Position*	Unterschrift *Signature*	Datum *Date*	Name / Stellung *Name / Position*	Unterschrift *Signature*

Sonstiges / *Other*: none

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery*: *1 Tested item complete and undamaged*

Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TEST REPORT

On-site witnessing service

Applicant..... :	APTERA MOTORS Corp.
Address..... :	5818 El Camino Real, Carlsbad CA 92008, USA
Licence Holder..... :	APTERA MOTORS Corp.
Address..... :	5818 El Camino Real Carlsbad CA 92008 USA
Manufacturer..... :	APTERA MOTORS Corp.
Address..... :	5818 El Camino Real Carlsbad CA 92008 USA
Test item description..... :	
Trade Mark ..... :	See Technical Product Information table
Model/Type reference..... :	APTERA ATLAS 1
Ratings..... :	N/A
Information provided by the customer	
Sample ..... :	APTERA ATLAS 1
Samples received on..... :	July 6th 2026
TÜV reference samples..... :	A004358920-001
Samples tested n. ..... :	1

ENGAGEMENT SUMMARY:

Aptera Motors requested that TÜV Rheinland provide an on-site witnessing service at Aptera's facility in Carlsbad, California. The scope of the engagement was to witness and independently verify that the Aptera solar electric vehicle, parked in direct sunlight under ambient outdoor conditions, accumulated a minimum of 4.0 kWh of usable energy delivered to the high-voltage battery pack over the course of a single calendar day.

The specific value of this engagement was the independent, third-party system-level witnessing of integrated solar energy harvest performance: panels, charge controller, HV battery operated together as a complete vehicle system. TÜV personnel observed, recorded, and confirmed the test results by performing onsite measurements with their own calibrated instruments (Dewesoft power analyzer, Dewesoft voltage+current sensors).

Summary of testing:

1) Experiment 1: Vehicle positioned closed at fixed position and fixed orientation. Acquisition of the signals (7 PV strings and High Voltage line) will be performed on an entire day from sunrise to sunset (sampling rate > 1 points/second).

2) Experiment 2: Vehicle positioned closed at fixed position and changing orientation at least once during the day. Acquisition of the signals (7 PV strings and High Voltage line) will be performed on an entire day from sunrise to sunset (sampling rate > 1 points/second).

3) Experiment 3: Vehicle positioned with hatch open at fixed position and changing orientation at least once during the day. Acquisition of the signals (7 PV strings and High Voltage line) will be performed on an entire day from sunrise to sunset (sampling rate > 1 points/second).

List of Annex (including a total number of pages in each attachment):

Annex No.	Title/Description (indicate also if attached or not)	Number of pages
01	Electrical schematics	N/A
02	Setup for the tests	N/A

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The results apply to the sample as received, when the Laboratory has not been responsible for the sampling stage.

The laboratory declines all responsibility for the data provided by the customer and reported in this test report.

Throughout this report, Generator sign convention (i.e., Producer Reference Frame) has been followed.

Throughout this report a point is used as the decimal separator.

The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and code provided on request.

IMPORTANT NOTICE

The information contained in this document, including test procedures and measurement results, in many cases inevitably depends on information provided by the manufacturer. Where this information may affect the test results, no responsibility is accepted for the integrity and truthfulness of such information.

In the same way, the manufacturer selects the test sample and therefore no responsibility is accepted for the representativeness of this sample in respect to the production batches. This test report refers only to the tested samples.

Decision rule:

The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken into account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

Where statements of conformity are made in this report, the following decision rules are applied: PASS – Results within limits/specifications, FAIL – Results exceed limits/specifications

Possible test case verdicts:

- test case does not apply to the test object ..... :	N/A or NA
- test object was not evaluated for the requirement ... :	N/E
- test object does meet the requirement..... :	Pass (P)
- test object does not meet the requirement..... :	Fail (F)

General product information provided by the customer:

Description of the test sample - provided by the customer:

The vehicle used for the tests is APTERA ATLAS 1. A picture of the vehicle with the parts including specified solar cells is shown in Figure 1.

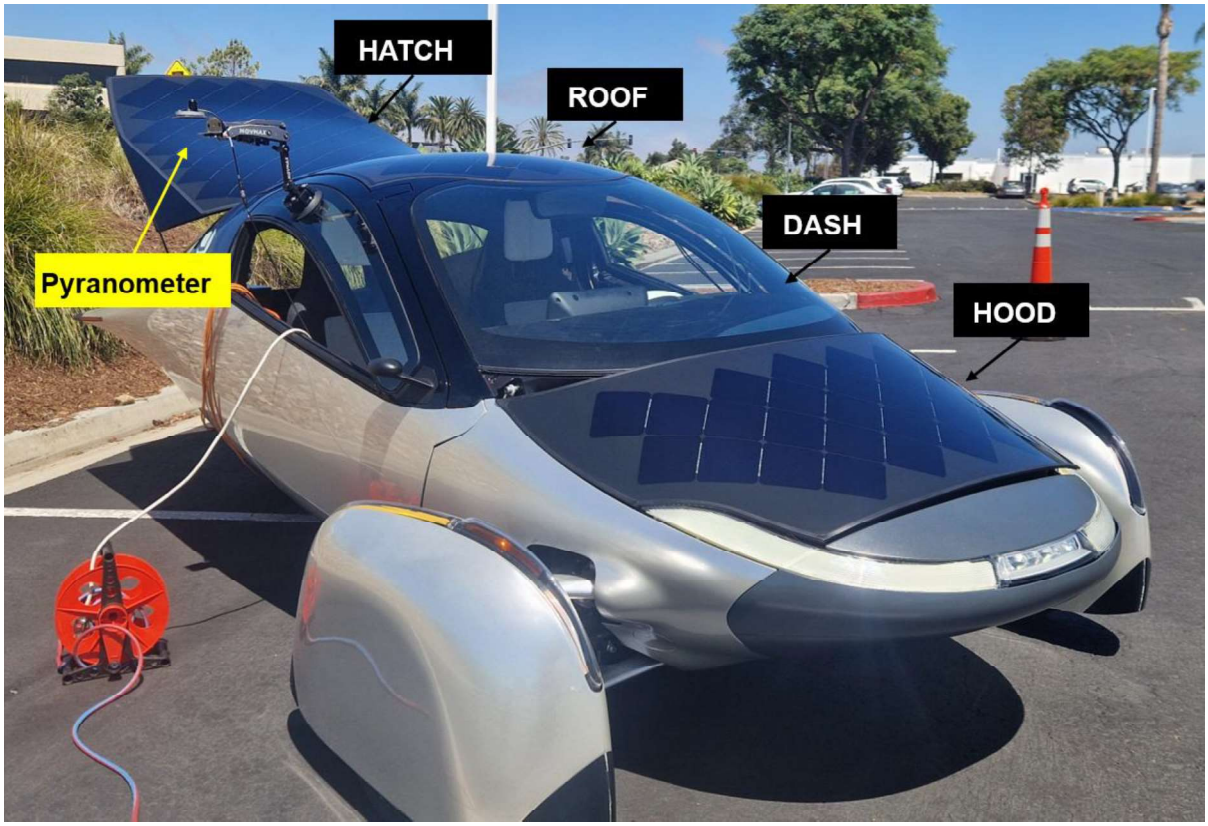


Figure 1 Picture of the vehicle APTERA ATLAS 1 under test

The vehicle is equipped with solar panels integrated into four areas of the vehicle body: the hood (front), the dash, the roof, and the hatch (rear). The actual hardware on the Aptera vehicle is shown in more detail in Figure 2.

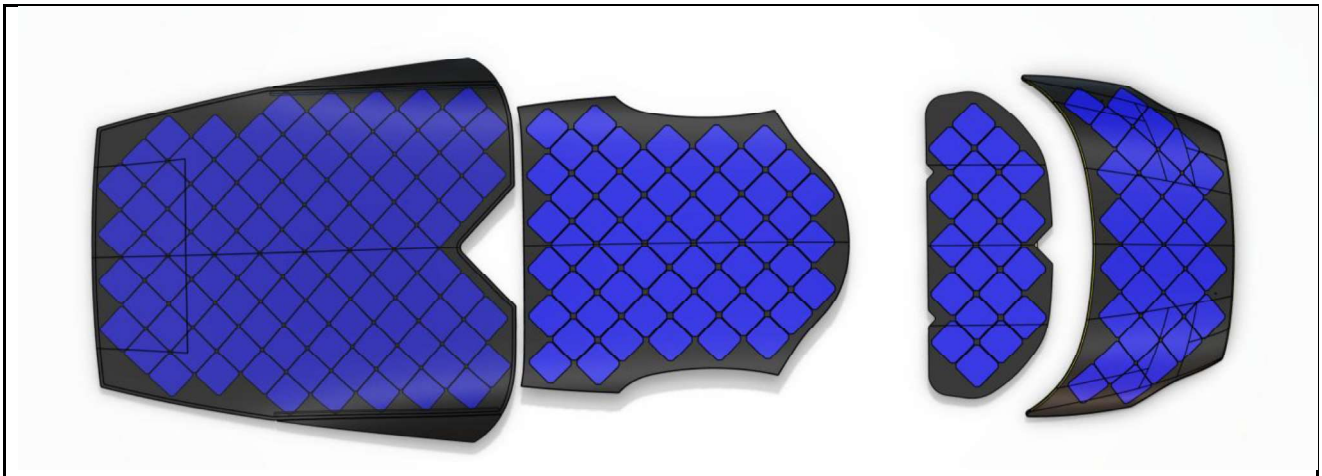


Figure 2- Close-up photos/diagrams of the panels and their placement

The electrical characteristics of the strings are reported in Table 1

Table 1 ATLAS 1 Vehicle Solar Array Characteristics measured by Aptera (excludes curvature and light transmission losses)

	HOOD	DASH	ROOF		HATCH			VEHICLE
	String A	String B	String C	String D	String E	String F	String G	VEHICLE TOTAL
Cell Count	30	20	24	32	27	35	37	205
Pmpp (Wp)	119.4	79.6	95.52	127.36	107.46	139.3	147.26	815.9

A pyranometer - a device that measures how much sunlight is arriving - was mounted as a reference, so the panels' output can be compared against the sunshine that was actually available. The pyranometer was mounted horizontally and leveled. The measured irradiance is consequently the global horizontal irradiance.

The electrical schematics of the PV system and the setup of the test are reported in Annex 1 and Annex 2.

Description of the test setup:

The testing setup consists of previously calibrated instruments from TÜV Rheinland attached to the PV strings of the APTERA ATLAS 1 vehicle while keeping them connected to charge controller and battery of the vehicle. A Dewesoft SIRIUSi Data Acquisition (DAQ) System was used to acquire the signals simultaneously. Dewesoft DSIi-20A Current transducers were connected in series to each string and to the high voltage line. The voltage signal of each line was measured connecting the data acquisition system in parallel. A schematic of the setup of one line as example and the adaptors prepared for the purpose is shown in Figure 3.

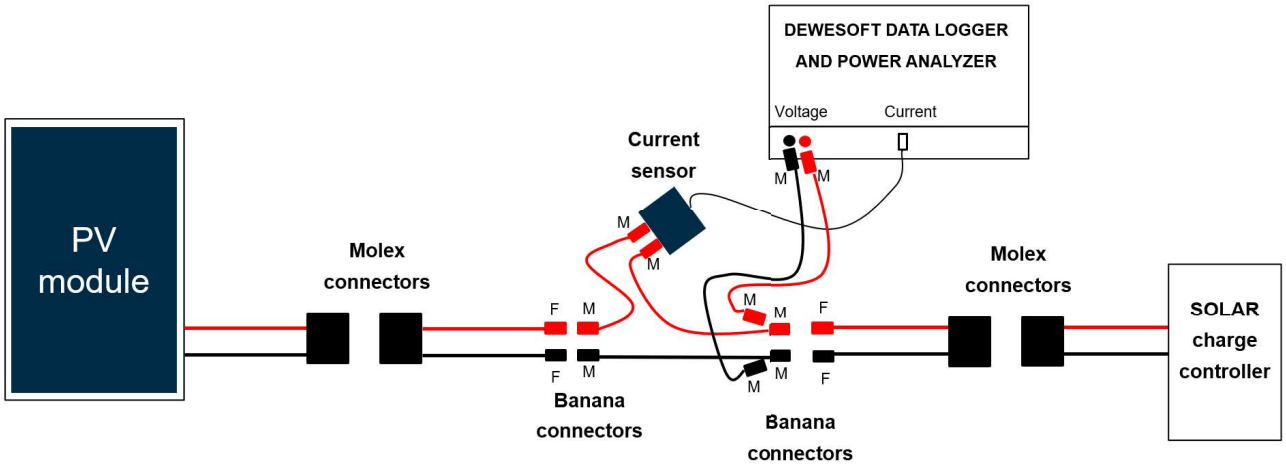


Figure 3 Setup of the tests (setup of one line as example)

A pyranometer was mounted horizontally attached to the vehicle as a reference, so the panels' output can be compared against the sunshine that was actually available. The pyranometer was mounted horizontally and leveled. The measured irradiance is consequently the global horizontal irradiance.

A picture of the instruments as positioned in the vehicle during one day of acquisition is shown in Figure 4.

Figure 4 Picture of the setup

Summary of Testing from TÜV Rheinland Italia (name of test and test clause):			
Item	**Test description**	**Testing date**	**Result**
1	**EXPERIMENT 1**: VEHICLE CLOSED AT FIXED POSITION AND FIXED ORIENTATION	July 6th 2026	P
2	**EXPERIMENT 2**: VEHICLE CLOSED AT FIXED POSITION AND CHANGING ORIENTATION	July 7th 2026	P
3	**EXPERIMENT 3**: VEHICLE WITH HATCH OPEN AT FIXED POSITION AND CHANGING ORIENTATION	July 8th 2026	P

TEST RESULTS from TÜV Rheinland Italia laboratory:

EXPERIMENT 1			
Requirement – Test	**Testing date**	**Measured global horizontal dose (Wh/m²)**	**Measured high voltage line energy (Wh)**
VEHICLE CLOSED AT FIXED POSITION AND FIXED ORIENTATION	July 6th 2026	5709	4233.2

1.1) Testing conditions

Vehicle position	Fixed position 33° 8' 8'' N, 117° 16' 18'' W
Vehicle orientation	Fixed orientation: Front facing 84° East
Vehicle condition	Vehicle kept in fixed position and orientation with HATCH always closed during the entire testing time.
Testing period	From 7:03 AM to 7:07 PM

Figure 5 – testing conditions of Day 1: July 6th 2026

1.2) Irradiance measurements

The irradiance measurement data acquired with the pyranometer positioned close to the vehicle at horizontal plane during the entire day (July 6th 2026) are shown in Figure 6. The global horizontal irradiance measured in W/m² at the horizontal plane close to the vehicle during the entire testing period (from 7:03 AM to 7:07 PM) is shown together with the calculated dose. During Day 1 5709 Wh/m² of sunlight reached the vehicle at the horizontal plane. This data serves as reference when comparing data from multiple days.

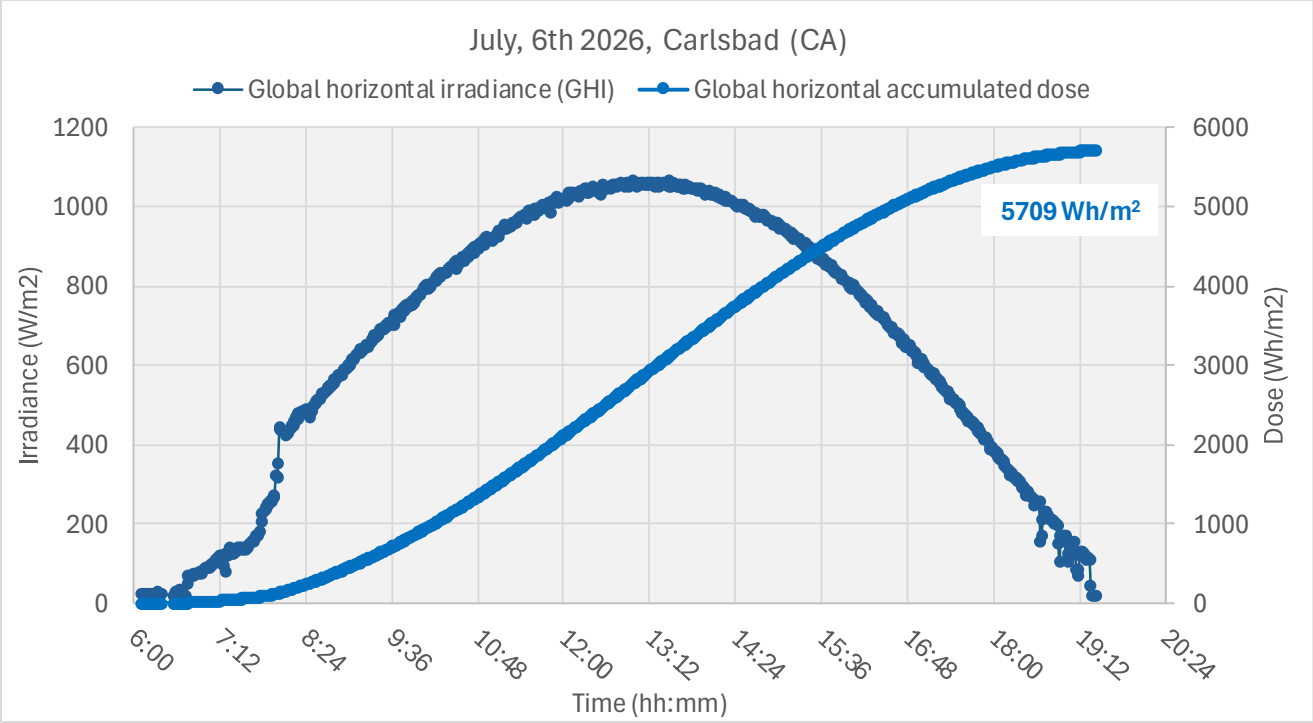


Figure 6 – Irradiance measurements of Day 1: July 6th 2026

1.3) Measured electrical signals

The maximum power of each line (HIGH VOLTAGE, HOOD, DASH, ROOF L, ROOF R, HATCH R, HATCH M, HATCH L) acquired simultaneously in the entire testing period (from 7:03 AM to 7:07 PM) of Day 1 July 6th 2026 is shown in Figure 7

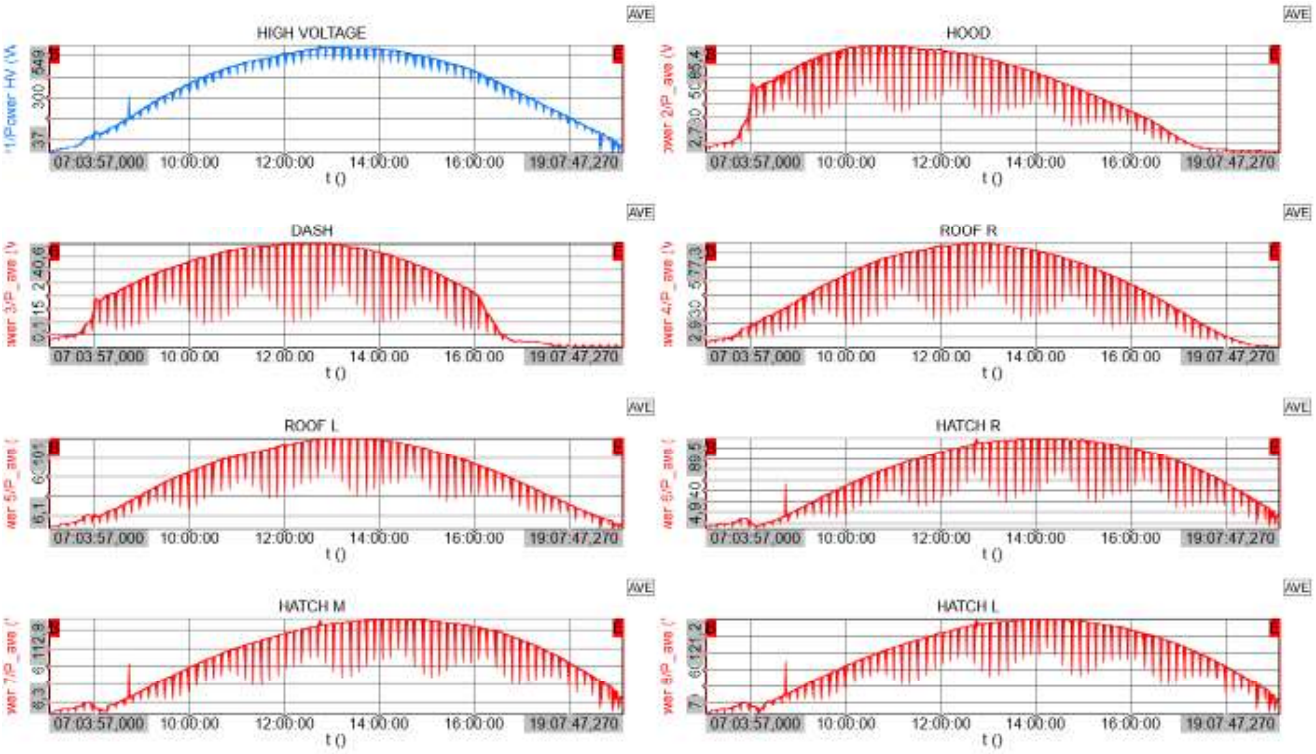


Figure 7 – Measurements of electrical power Pmax (W) of each line of Day 1: July 6th 2026

The curves typically follow the sun profile: low output in the early morning, a peak around midday when the sun is highest, and a decline toward the evening. Dips can be caused by passing clouds or shading. The regular breaks observable every 10 minutes are due to the periodical charge controller maximum power point check.

In Figure 8 the complete data set of voltage, current, power and energy of the HIGH VOLTAGE line is shown. This represents the total energy fed into the battery of the vehicle by the solar system of the vehicle during the entire day (Day 1: July 6th 2026). The maximum measured value of each parameter is indicated in the boxplot on the top.

In Figure 9 the high voltage line total daily energy production in Wh of Day 1 (July 6th 2026) is shown. This indicates that the solar system of the vehicle under test delivered 4233.2 Wh into the vehicle's high voltage line over the whole testing period (from 7:03 AM to 7:07 PM of Day 1: July 6th 2026).

Finally in Figure 10 it is shown the comparison of the power and energy produced by the HIGH VOLTAGE line with the sum of what was produced by each line (HOOD, DASH, ROOF L, ROOF

R, HATCH R, HATCH M, HATCH L) individually. The good match of the two curves indicates the measurements are reliable and little energy is being lost due to conversion losses in the electronics. The calculated conversion efficiency loss in Day 1 is approx. 9.6%.

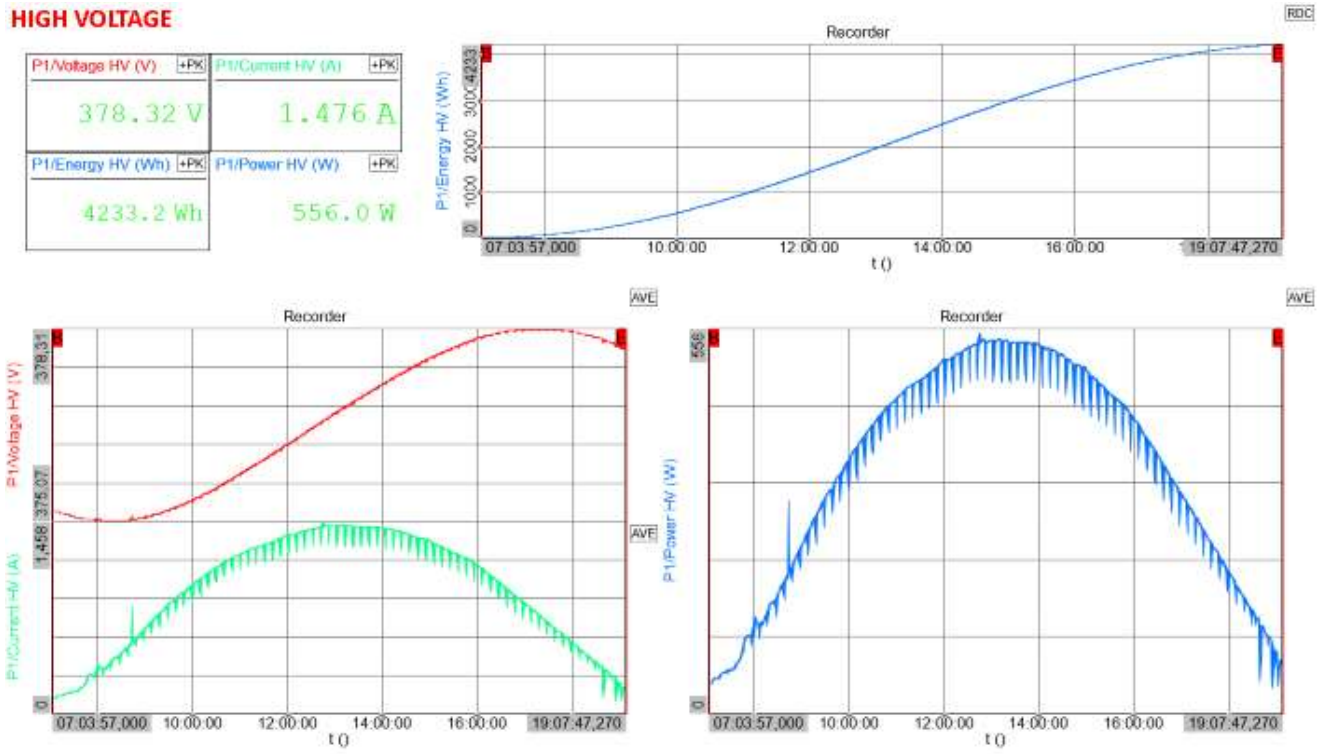


Figure 8 – Zooms in on the HIGH VOLTAGE LINE: voltage, current, power and energy data acquired during Day 1: July 6th 2026. The values reported in the boxes indicate the maximum measured values of voltage, current, power and energy measured during the day.

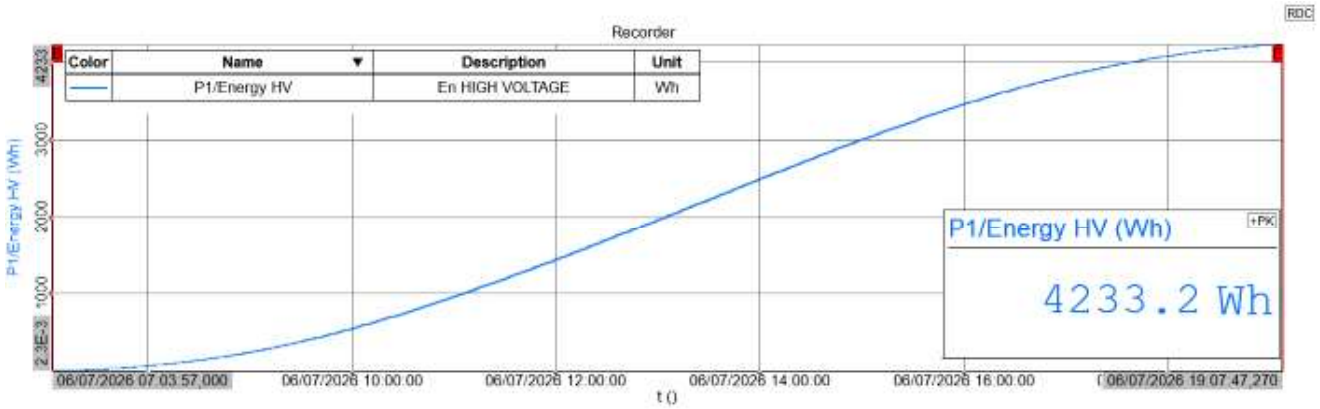


Figure 9 - High Voltage line – Daily energy production (Wh) in Day 1: July 6th 2026

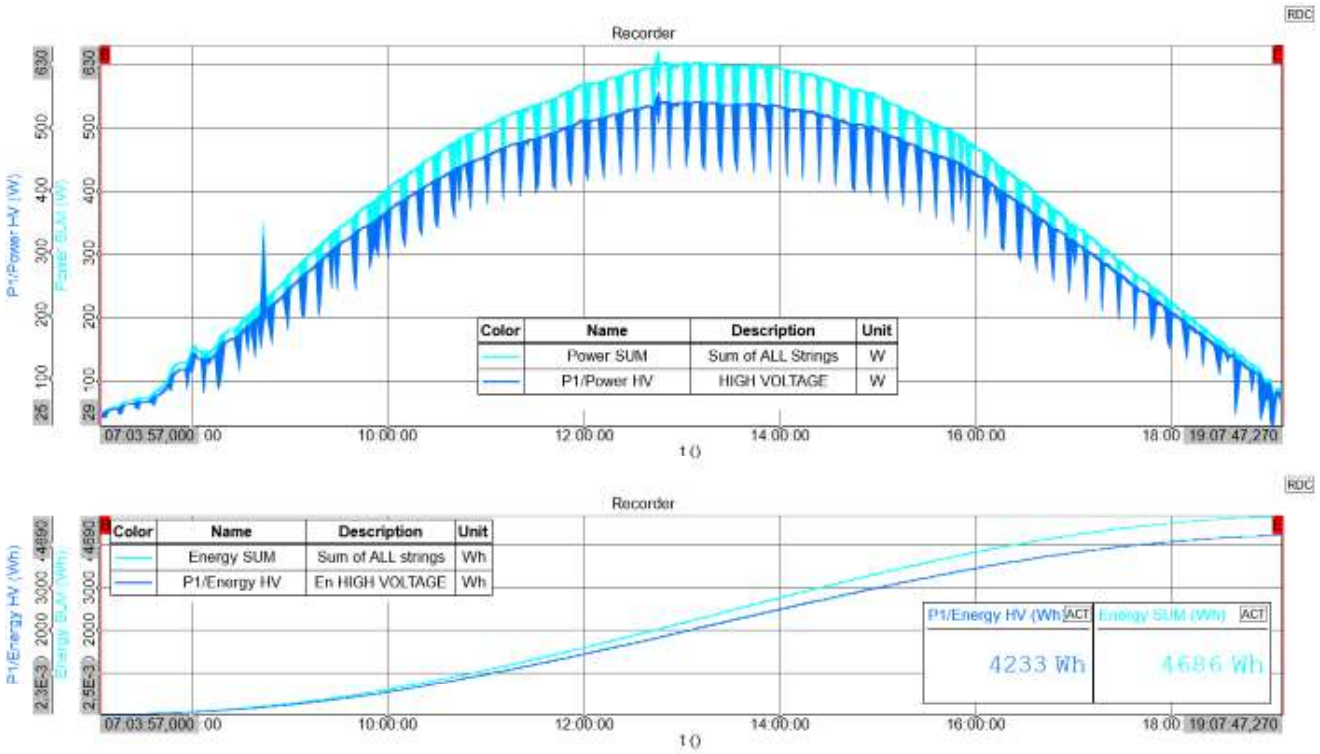


Figure 10 - HIGH VOLTAGE line vs SUM of ALL STRINGS: The output power and energy measured on the main high-voltage line is compared with the sum of what each individual string produced in Day 1: July 6th 2026

EXPERIMENT 2			
Requirement – Test	**Testing date**	**Measured global horizontal dose (Wh/m²)**	**Measured high voltage line energy (Wh)**
VEHICLE CLOSED AT FIXED POSITION AND CHANGING ORIENTATION	July 7th 2026	5779	4402.6

2.1) Testing conditions

Vehicle position	Fixed position 33° 8' 8'' N, 117° 16' 18'' W
Vehicle orientation	• Rear facing 90° East (morning 7:32 am – 1 pm) • Front facing 90° East (afternoon 1 pm – 7:03 pm)
Vehicle condition	Vehicle kept in fixed position but orientation changed once during the day. HATCH always closed during the entire testing time.
Testing period	From 7:32 AM to 7:03 PM

Morning (7:32 am – 1 pm) **Afternoon (1 pm – 7:03 pm)**

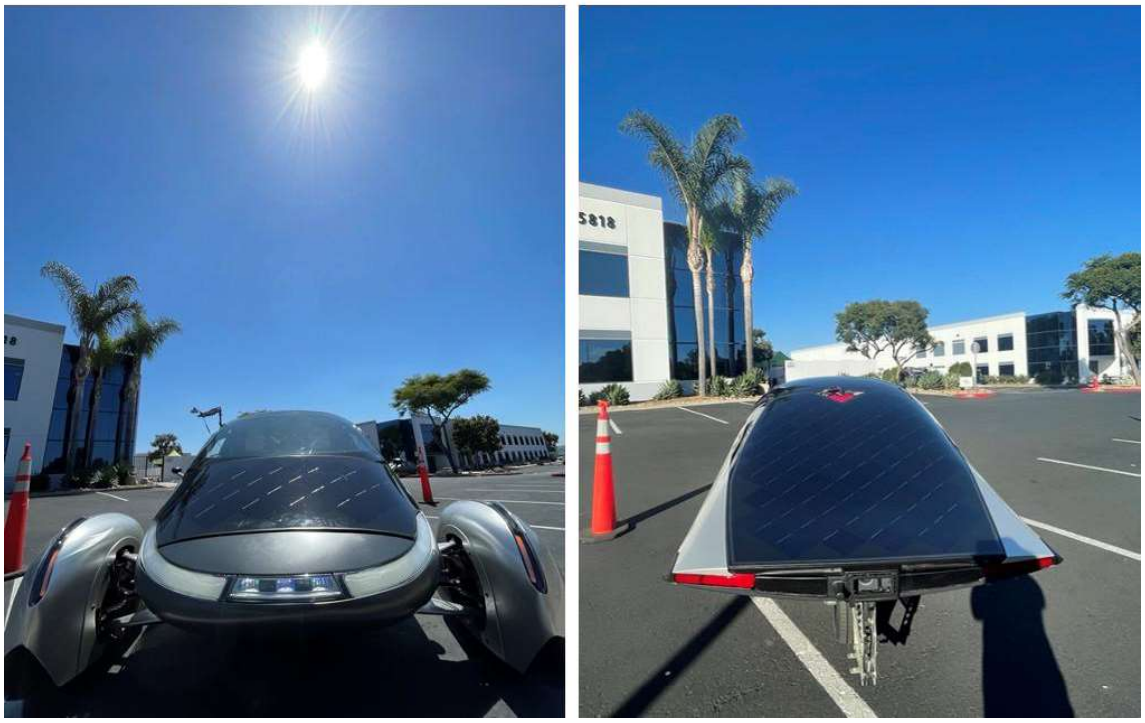


Figure 11 – Testing conditions of DAY 2: July 7th 2026

2.2) Irradiance measurements

The irradiance measurement data acquired with the pyranometer positioned close to the vehicle at horizontal plane during the entire day (July 7th 2026) are shown in Figure 12. The global horizontal irradiance measured in W/m² at the horizontal plane close to the vehicle during the entire testing period (from 7:32 AM to 7:03 PM) is shown together with the calculated dose. During Day 2 5779 Wh/m² of sunlight reached the vehicle at the horizontal plane. This data serves as reference when comparing data from multiple days.

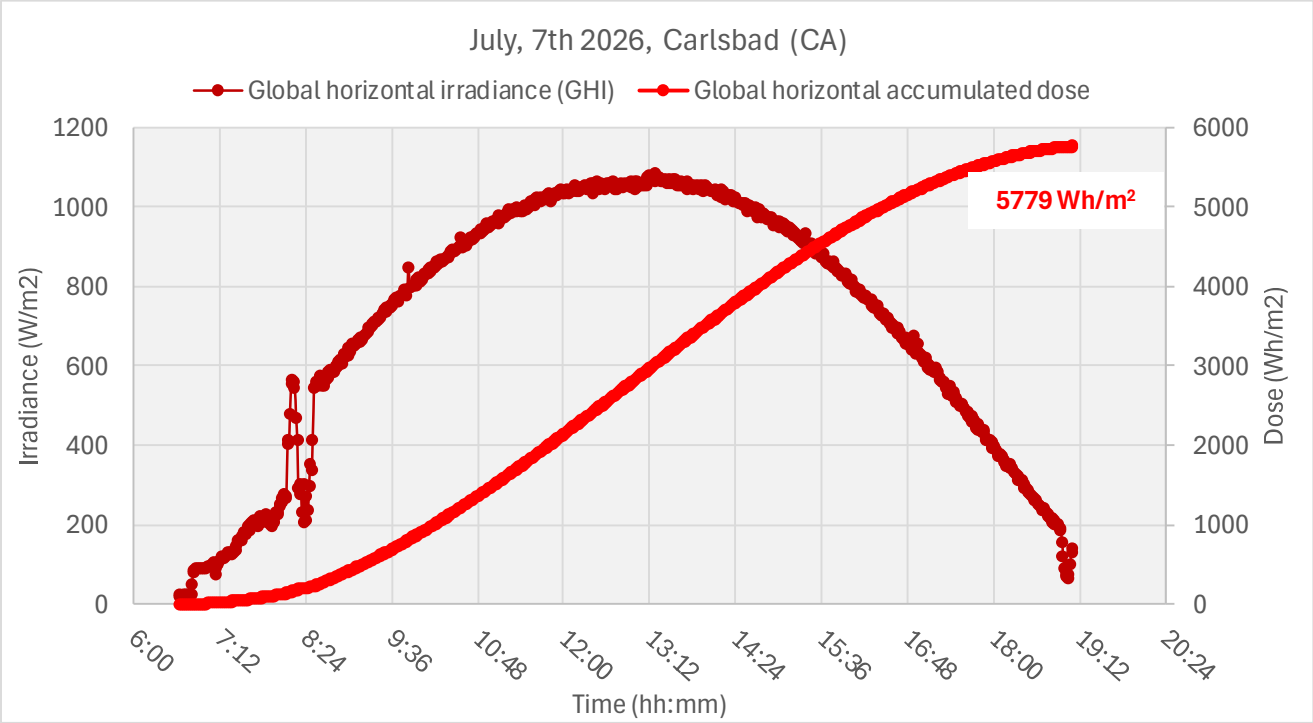


Figure 12 Irradiance measurements of Day 2: July 7th 2026

2.3) Measured electrical signals

The maximum power of each line (HIGH VOLTAGE, HOOD, DASH, ROOF L, ROOF R, HATCH R, HATCH M, HATCH L) acquired simultaneously in the entire testing period (from 7:32 AM to 7:03 PM) of Day 2 July 7th 2026 is shown in Figure 13.

The curves typically follow the sun profile. Dips can be caused by passing clouds or shading. The regular breaks observable every 10 minutes are due to the periodical charge controller maximum power point check.

In Figure 14 the complete data set of voltage, current, power and energy of the HIGH VOLTAGE line is shown. This represents the total energy fed into the battery of the vehicle by the solar system of the vehicle during the entire day (Day 2: July 7th 2026). The maximum measured value of each parameter is indicated in the boxplot on the top.

In Figure 15 the high voltage line total daily energy production in Wh of Day 2 (July 7th 2026) is shown. This indicates that the solar system of the vehicle under test delivered 4402.6 Wh into the vehicle's high voltage line over the whole testing period (from 7:32 AM to 7:03 PM of Day 2: July 7th 2026).

Finally in Figure 16 it is shown the comparison of the power and energy produced by the HIGH VOLTAGE line with the sum of what was produced by each line (HOOD, DASH, ROOF L, ROOF R, HATCH R, HATCH M, HATCH L) individually. The good match of the two curves indicates the measurements are reliable and little energy is being lost due to conversion losses in the electronics. The calculated conversion efficiency loss in Day 2 is approx. 9.2%.

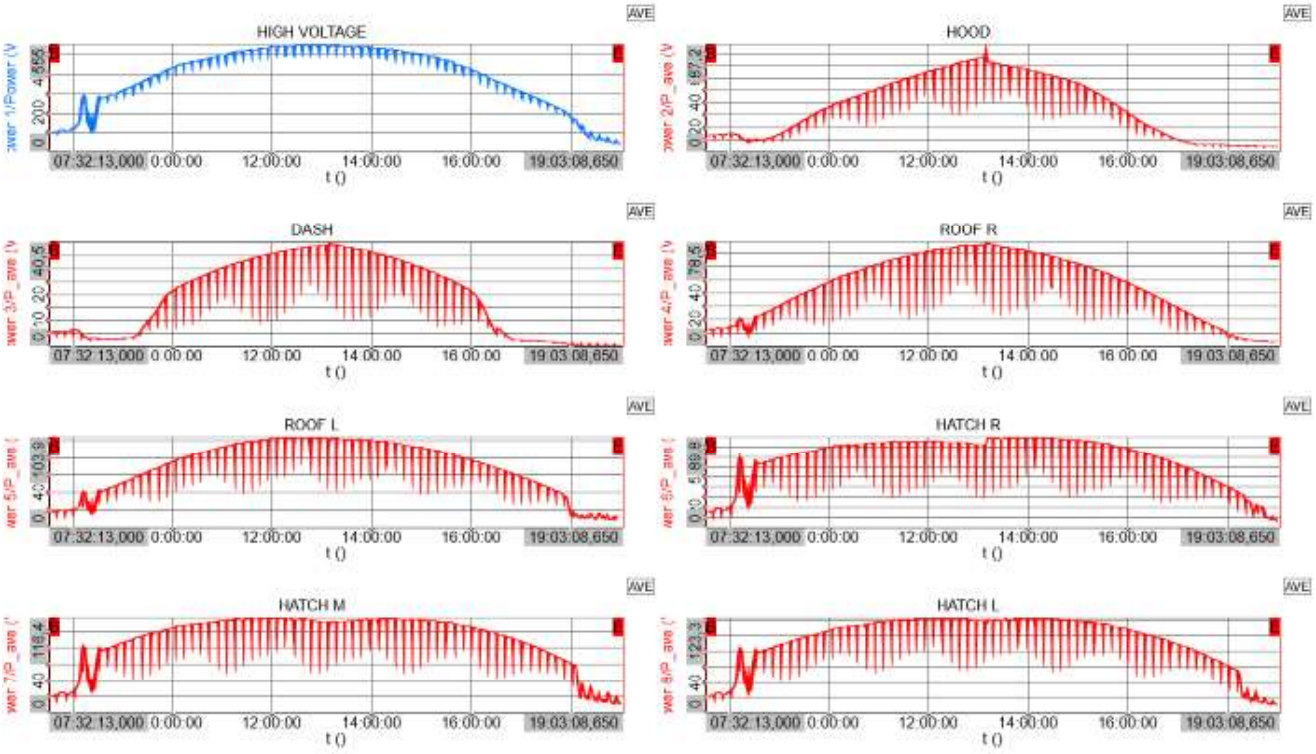


Figure 13 Measurements of electrical power Pmax (W) of each line of Day 2: July 7th 2026

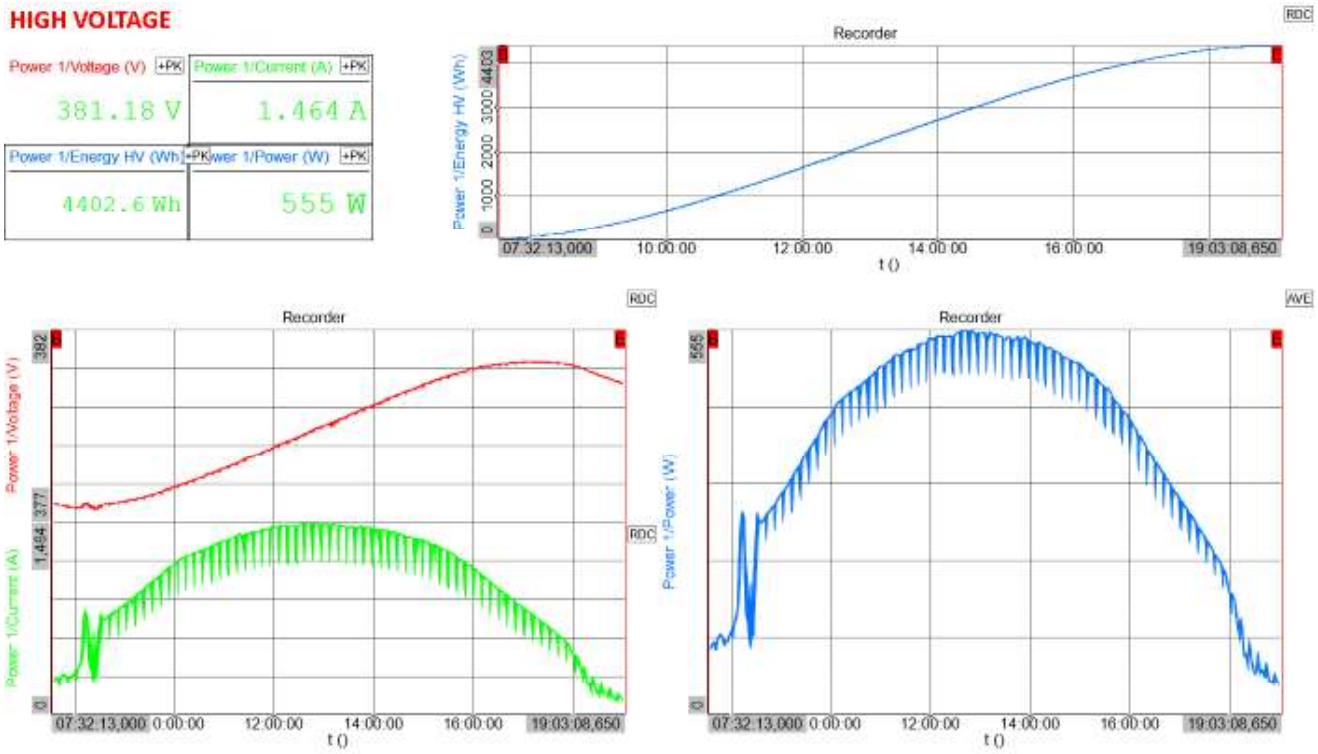


Figure 14 Zooms in on the HIGH VOLTAGE LINE: voltage, current, power and energy data acquired during Day 2: July 7th 2026. The values reported in the boxes indicate the maximum measured values of voltage, current, power and energy measured during the day.

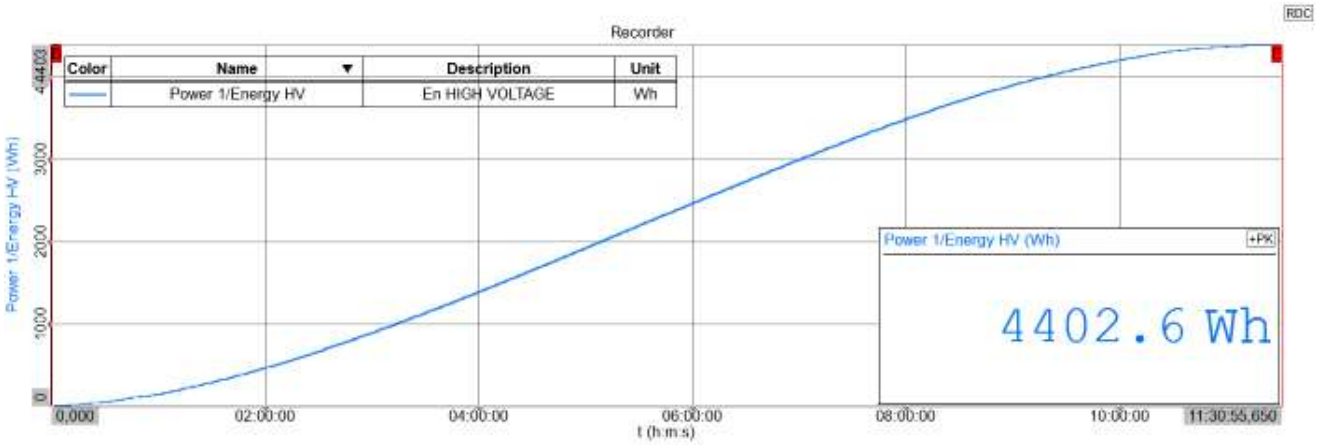


Figure 15 High Voltage line – Daily energy production (Wh) in Day 2: July 7th 2026

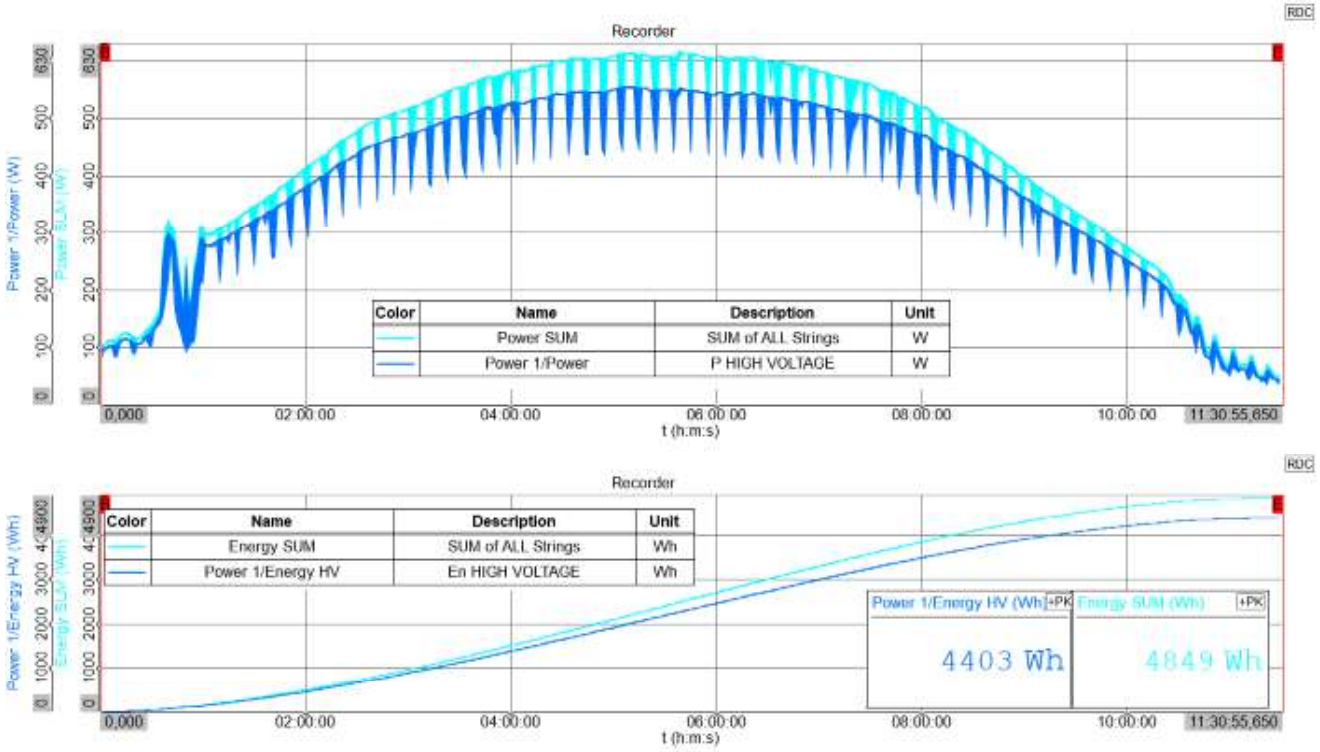


Figure 16 HIGH VOLTAGE line vs SUM of ALL STRINGS: The output power and energy measured on the main high-voltage line is compared with the sum of what each individual string produced in Day 2: July 7th 2026

EXPERIMENT 3			
Requirement – Test	**Testing date**	**Measured global horizontal dose (Wh/m²)**	**Measured high voltage line energy (Wh)**
VEHICLE WITH HATCH OPEN AT FIXED POSITION AND CHANGING ORIENTATION	July 8th 2026	5446	4754.2

3.1) Testing conditions

Vehicle position	Fixed position 33° 8' 8'' N, 117° 16' 18'' W
Vehicle orientation	• Front facing 90° East (morning 7:09 am – 1 pm) • Rear facing 90° East (afternoon 1 pm – 7:31 pm)
Vehicle condition	Vehicle kept in fixed position but orientation changed once during the day. HATCH always open and facing the sun during the entire testing time
Testing period	From 7:09 AM to 7:31 PM

Morning (7:09 am– 1 pm) **Afternoon (1 pm– 7.31 pm)**

Figure 17 Testing conditions of DAY 3: July 8th 2026

3.2) Irradiance measurements

The irradiance measurement data acquired with the pyranometer positioned close to the vehicle at horizontal plane during the entire day (July 8th 2026) are shown in Figure 18. The global horizontal irradiance measured in W/m² at the horizontal plane close to the vehicle during the entire testing period (from 7:09 AM to 7:31 PM) is shown together with the calculated dose. During Day 3 5446 Wh/m² of sunlight reached the vehicle at the horizontal plane. This data serves as reference when comparing data from multiple days.

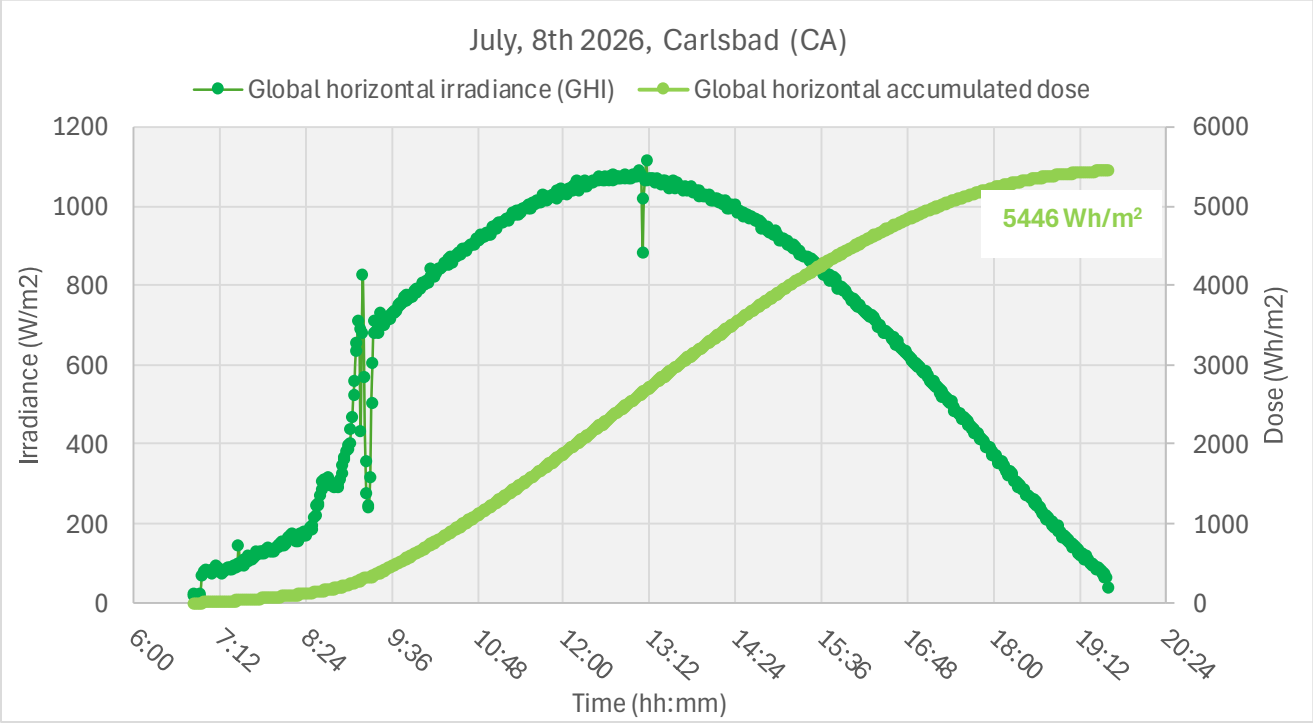


Figure 18 Irradiance measurements of Day 3: July 8th 2026

3.3) Measured electrical signals

The maximum power of each line (HIGH VOLTAGE, HOOD, DASH, ROOF L, ROOF R, HATCH R, HATCH M, HATCH L) acquired simultaneously in the entire testing period (from 7:09 AM to 7:31 PM) of Day 3 July 8th 2026 is shown in Figure 19.

The curves typically follow the sun profile. Dips can be caused by passing clouds or shading. The regular breaks observable every 10 minutes are due to the periodical charge controller maximum power point check.

In Figure 20 the complete data set of voltage, current, power and energy of the HIGH VOLTAGE line is shown. This represents the total energy fed into the battery of the vehicle

by the solar system of the vehicle during the entire day (Day 3: July 8th 2026). The maximum measured value of each parameter is indicated in the boxplot on the top.

In Figure 21 the high voltage line total daily energy production in Wh of Day 3 (July 8th 2026) is shown. This indicates that the solar system of the vehicle under test delivered 4754.2 Wh into the vehicle's high voltage line over the whole testing period (from 7:09 AM to 7:31 PM of Day 3: July 8th 2026).

Finally in Figure 22 it is shown the comparison of the power and energy produced by the HIGH VOLTAGE line with the sum of what was produced by each line (HOOD, DASH, ROOF L, ROOF R, HATCH R, HATCH M, HATCH L) individually. The good match of the two curves indicates the measurements are reliable and little energy is being lost due to conversion losses in the electronics. The calculated conversion efficiency loss in Day 3 is approx. 9.6%.

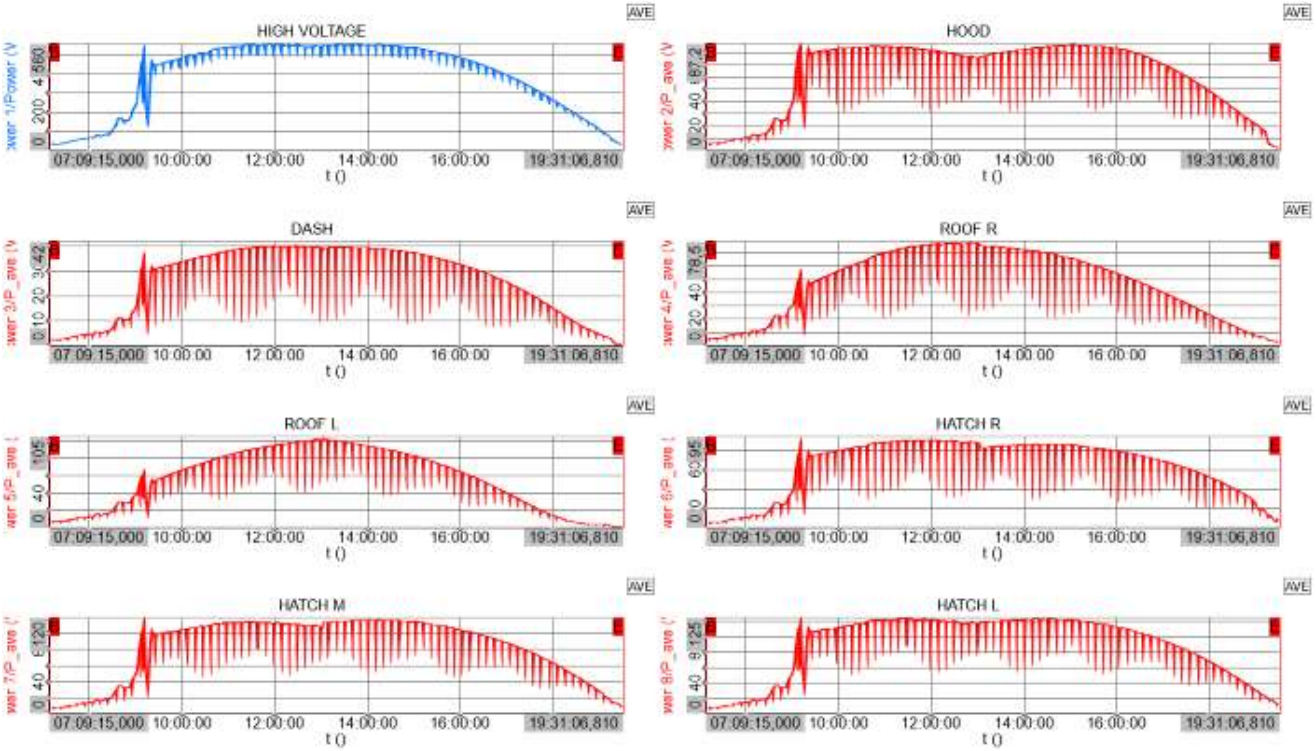


Figure 19 Measurements of electrical power Pmax (W) of each line of Day 3: July 8th 2026

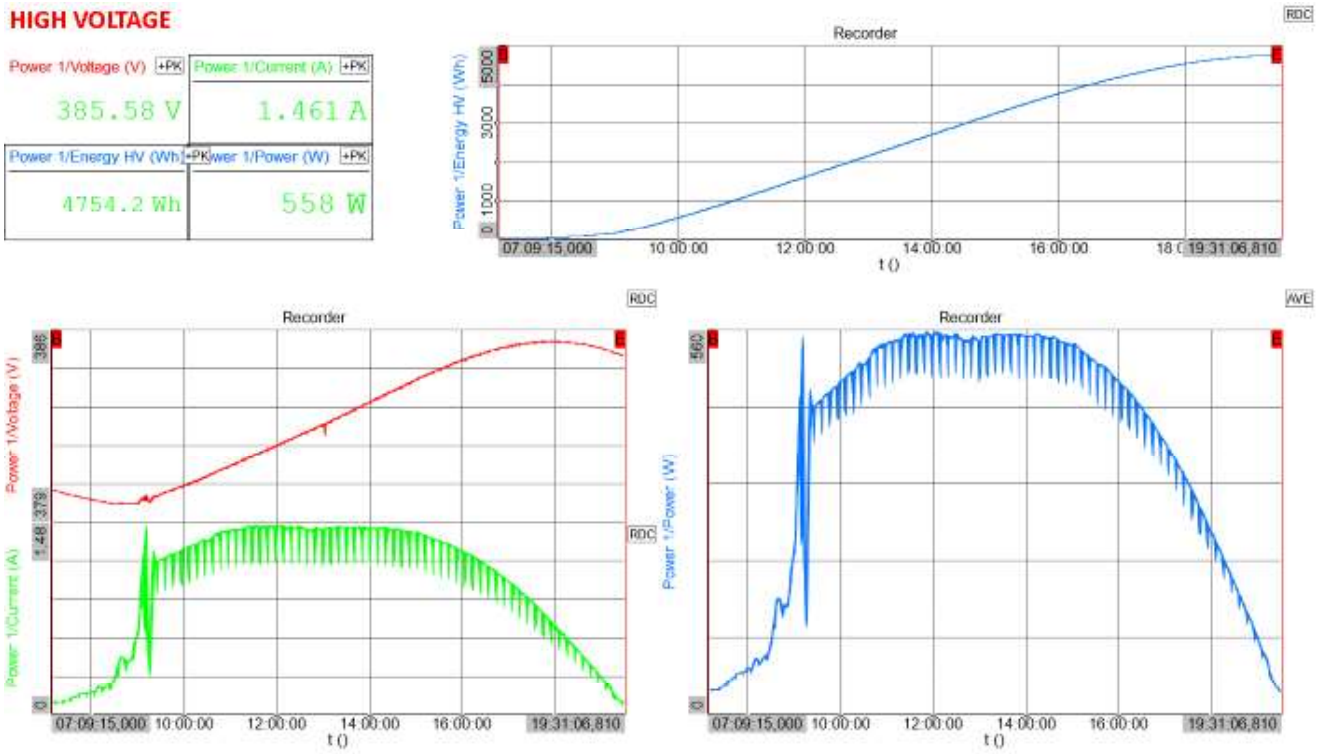


Figure 20 Zooms in on the HIGH VOLTAGE LINE: voltage, current, power and energy data acquired during Day 3: July 8th 2026. The values reported in the boxes indicate the maximum measured values of voltage, current, power and energy measured during the day.

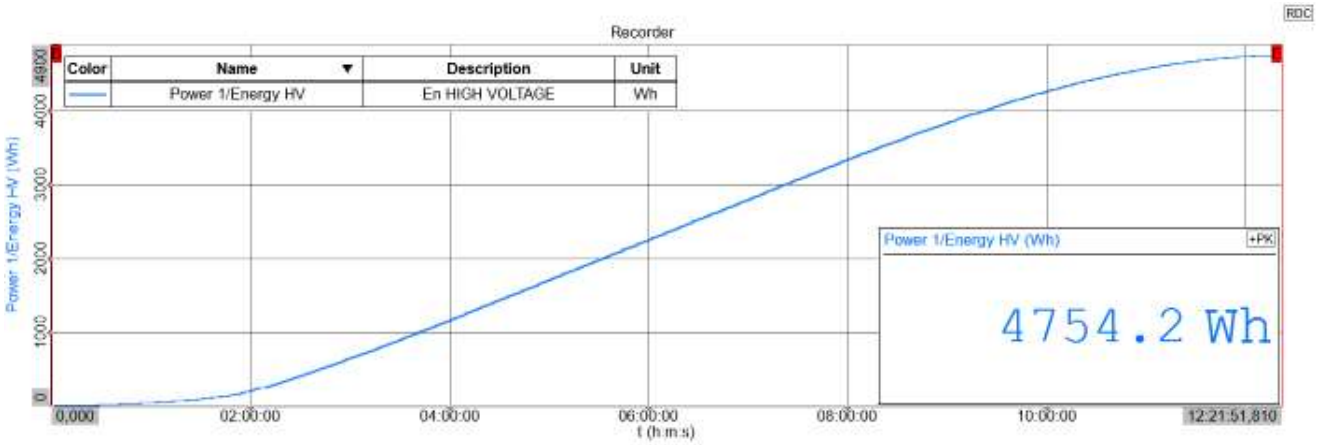


Figure 21 High Voltage line – Daily energy production (Wh) in Day 3: July 8th 2026

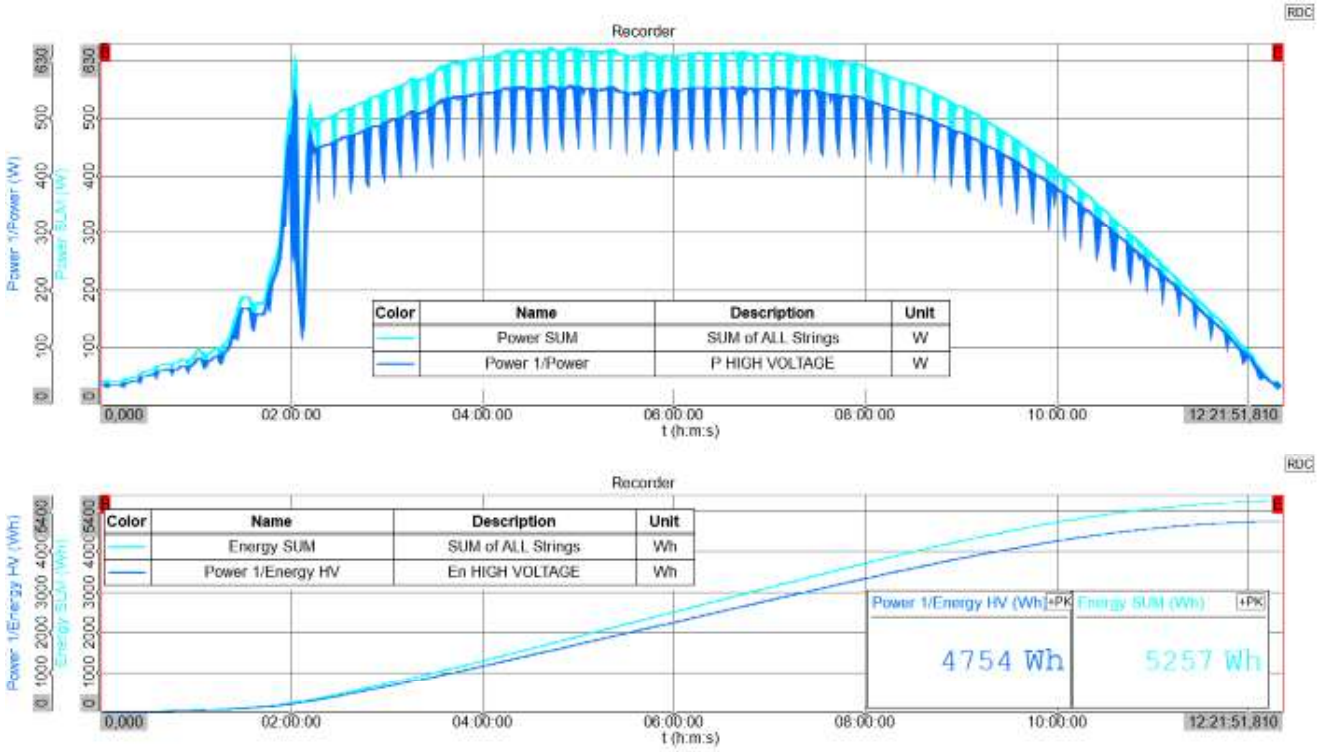


Figure 22 HIGH VOLTAGE line vs SUM of ALL STRINGS: The output power and energy measured on the main high-voltage line is compared with the sum of what each individual string produced in Day 3: July 8th 2026

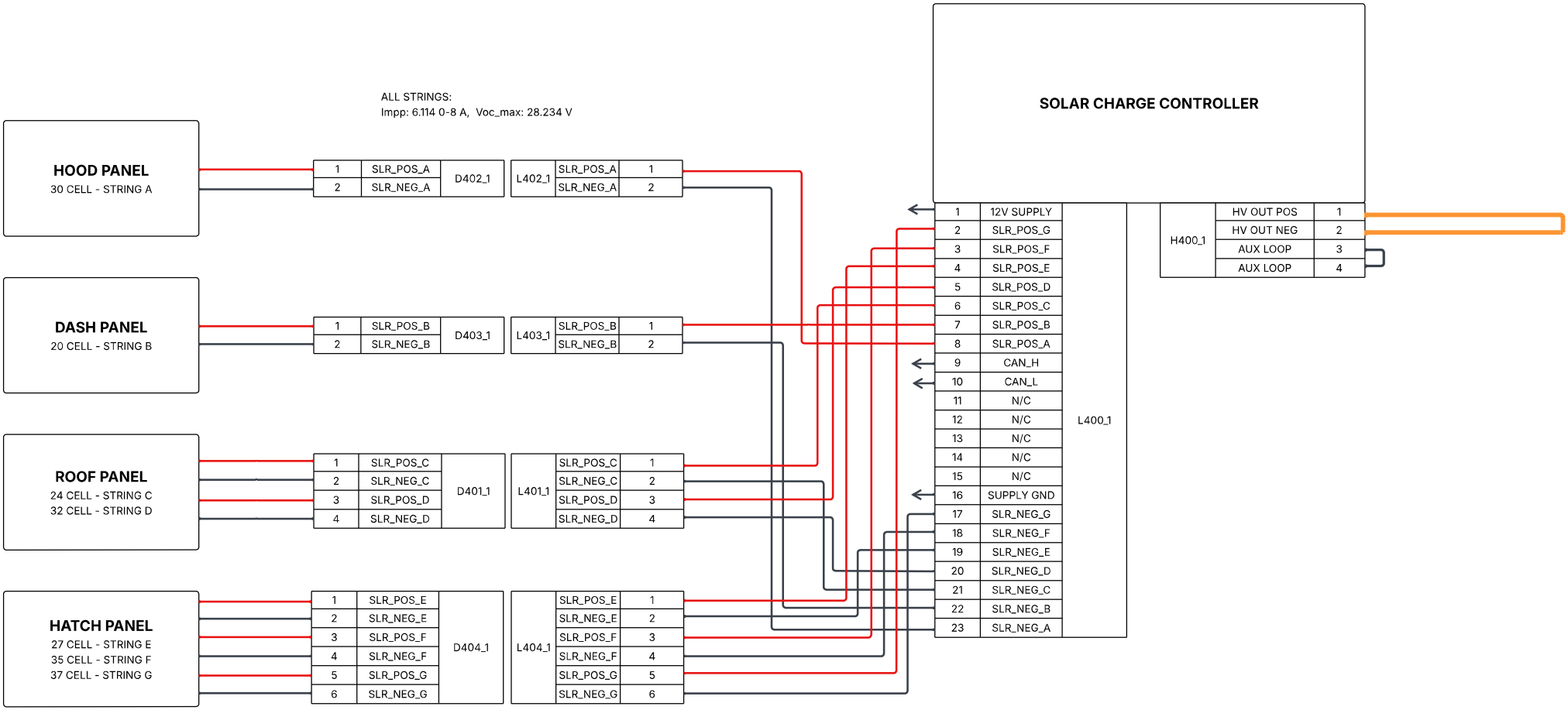
Instrument List:

Instrument	Manufacturer	Model	Serial	TÜV Rh Code	Last calibration
Current Probe	DEWESOFT	REDB - DSIi-20A	DB21001849	9025737	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB21001851	9025738	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB21001853	9025739	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB21001855	9025740	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB25033687	9089428	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB25028787	9089429	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB25028786	9089430	Jun 2026
Current Probe	DEWESOFT	REDB - DSIi-20A	DB25028785	9089431	Jun 2026
Power Analyzer	DEWESOFT	SIRIUSi HS HV	DB19102560	9062798	Jun 2026
Power Analyzer	DEWESOFT	SIRIUSi HV	DB21023041	9042836	Apr 2026

Uncertainty budget:

Test Method	Exp. Uncertainty (95% conf. level)		
	Relative	Absolute	unit
MEASUREMENT OF DC VOLTAGE	0.027	0.01	% + %FS
MEASUREMENT OF DC CURRENT	1.2	0.01	% + %FS
MEASUREMENT OF DC POWER	1.2	0.01	% + %FS
The expanded uncertainty of the DC energy measurement over a 12 h integration period is estimated as ±1.3% (95% confidence level), derived from the uncertainty of the direct DC power measurement including the relative and full-scale contributions.			

- TEST REPORT END -


ALL STRINGS:
Impp: 6.114 0-8 A, Voc_max: 28.234 V
SOLAR CHARGE CONTROLLER
HOOD PANEL
30 CELL - STRING A
DASH PANEL
20 CELL - STRING B
ROOF PANEL
24 CELL - STRING C
32 CELL - STRING D
HATCH PANEL
27 CELL - STRING E
35 CELL - STRING F
37 CELL - STRING G
D402_1
D403_1
D401_1
D404_1
L402_1
L403_1
L401_1
L404_1
L400_1
H400_1
12V SUPPLY
SLR_POS_G
SLR_POS_F
SLR_POS_E
SLR_POS_D
SLR_POS_C
SLR_POS_B
SLR_POS_A
CAN_H
CAN_L
N/C
SUPPLY GND
SLR_NEG_G
SLR_NEG_F
SLR_NEG_E
SLR_NEG_D
SLR_NEG_C
SLR_NEG_B
SLR_NEG_A
HV OUT POS
HV OUT NEG
AUX LOOP
AUX LOOP

APTERA MOTORS VEHICLE

PV SYSTEMS: SETUP FOR THE TESTS