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SUPSI

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TEST REPORT

n.: 23-042/A-REP2

Customer: PVT Solar AG
Dorfstrasse 45
6035 Perlen - Switzerland

Sample: PVT Solar AG
BlackDiamond BSM-425

SUPSI PVLab

Accredited by SAS, Swiss Accreditation Service, in compliance with ISO17025:2017 number 0531
The list of test procedures included in the scope of ISO 17025 accreditation can be downloaded from http://www.seco.admin.ch/sas

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Prepared by:

Date: 21.07.2023

Giovanni Bellenda
Responsible of the test matrix

Giovanni Bellenda
2024-02-13 18:11
Digitally signed by Giovanni Bellenda

Approved by:

Date: 21.07.2023

Mauro Caccivio
Head of SUPSI PVLab

Mauro Caccivio
2024-02-13 18:24
Digitally signed by Mauro Caccivio

This report is electronically signed

TABLE OF CONTENTS

IDENTIFICATION OF MODULES

Manufacturer: PVT Solar AG

Module type: BlackDiamond BSM-425

MODULES IDENTIFICATION	
SERIAL NUMBER	**INTERNAL LABEL**
¨C1BSM220627106671AK	23-042/A/1
¨C1BSM220627106665AK	23-042/A/2
¨C1BSM220627106493AK	23-042/A/3
¨C1BSM220627106689AK	23-042/A/4

SERVICE INFORMATION

Order number: 23-042
Order date: 13.03.2023
Sample receipt date: 13.03.2023
Test period : 14.03.2023 - 09.05.2023

GENERAL REMARKS
This document is automatically generated. It shall not be reproduced, except in full, without the written approval of the test centre. The test results presented in this report relate only to the object tested. The sampling has been executed by the customer. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a coverage probability of 95%. The uncertainty evaluations have been carried out in accordance with SAS requirements.

MANUFACTURER NAMEPLATE/DATASHEET PARAMETERS

GENERAL	
Model	BlackDiamond BSM-425
Cell technology	sc-Si

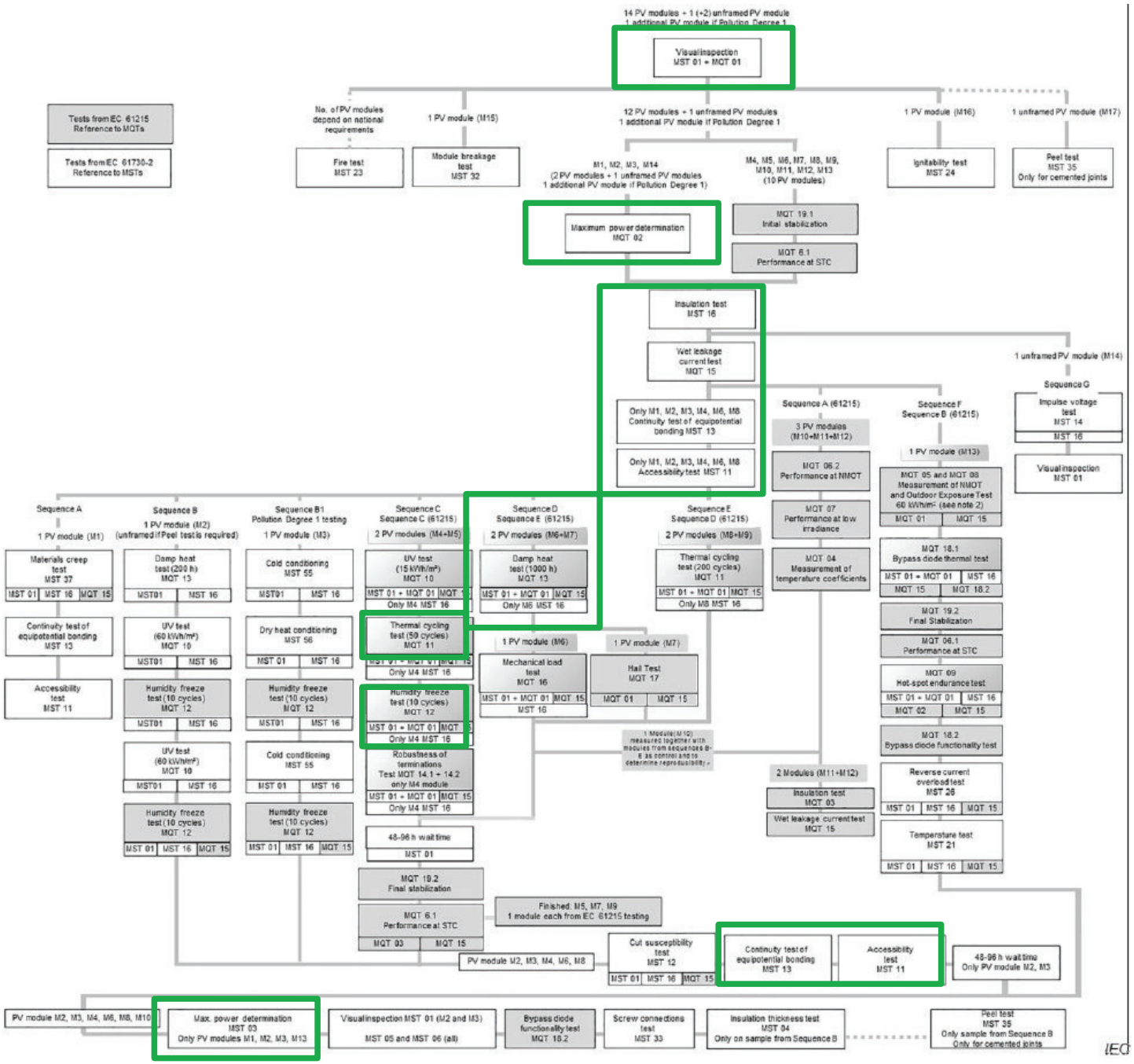
MECHANICAL FEATURES		SOURCE
Module length	172.2 cm	DS
Module height	113.4 cm	DS
Number of cells in parallel	2	DS
Number of cells in series	54	DS
Single cell area	165.05 cm^2	DS

ELECTRICAL FEATURES		SOURCE
Safety class	Class II	NP
Maximum power (Pm)	425 W	DS
Open circuit voltage (Voc)	38.25 V	DS
Short circuit current (Isc)	14.18 A	DS
Maximum power voltage (Vm)	32.03 V	DS
Maximum power current (Im)	13.29 A	DS
Maximum system voltage	1000 V	DS
Pm minimum tolerance	0 %	DS
Pm maximum tolerance	1.2 %	DS

TEMPERATURE FEATURES		SOURCE
Nominal operating cell temperature (NOCT)	0.048 °C	DS
Open circuit voltage temperature coefficient	-0.26 %/°C	DS
Maximum power temperature coefficient	-0.35 %/°C	DS

LEGEND:
DS: datasheet
NP: nameplate

TEST SEQUENCE – Selected test items



Remarks:
the test sequence is derived from IEC TS 62915:2917, cl. 4.2.5 Modification to back-sheet, and cl. 4.2.10 Modification to frame and/or mounting structure

TEST SEQUENCE

Legend:	Green: test passed	Red: test failed

MODULE 23-042/A/1	MODULE 23-042/A/2	MODULE 23-042/A/3	MODULE 23-042/A/4
VI 14.03.2023	VI 14.03.2023	VI 14.03.2023	VI 14.03.2023
IN 14.03.2023	IN 14.03.2023	IN 14.03.2023	IN 14.03.2023
WL 14.03.2023	WL 14.03.2023	WL 14.03.2023	WL 14.03.2023
PM_STC 14.03.2023	PM_STC 14.03.2023	PM_STC 14.03.2023	PM_STC 14.03.2023
EL 14.03.2023	EL 14.03.2023	EL 14.03.2023	EL 14.03.2023
TC 14.03.2023	TC 14.03.2023	DAH 14.03.2023	DAH 14.03.2023
HUF 21.03.2023	HUF 21.03.2023	VI 02.05.2023	VI 02.05.2023
VI 04.04.2023	VI 04.04.2023	IN 02.05.2023	IN 02.05.2023
IN 04.04.2023	IN 04.04.2023	WL 02.05.2023	WL 02.05.2023
WL 04.04.2023	WL 13.04.2023	PM_STC 02.05.2023	PM_STC 02.05.2023
PM_STC 05.04.2023	PM_STC 14.04.2023	EL 02.05.2023	EL 03.05.2023
EL 05.04.2023	EL 14.04.2023	ACS 03.05.2023	ACS 03.05.2023
ACS 14.04.2023	ACS 14.04.2023	GRD 03.05.2023	GRD 03.05.2023
GRD 14.04.2023	GRD 14.04.2023	REV 03.05.2023	REV 09.05.2023
REV 14.04.2023	REV 14.04.2023		

LIST OF USED ACRONYMS

Acronym	Description
ACS	Accessibility
DAH	Damp Heat
EL	Electroluminescence
GRD	Ground Continuity
HUF	Humidity Freeze Test
IN	Insulation test (IEC 61215: dielectric withstand test)
PM_STC	Performance at STC
REV	Reverse Current Overload
TC	Thermal Cycling
VI	Visual Inspection
WL	Wet Leakage Current

MODULE 23-042/A/1
TEST RESULTS

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module label	23-042/A/1
Type	BlackDiamond BSM-425
Serial number	¨C1BSM220627106671AK

REMARKS

THERMAL CYCLING TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106671AK	**Ending date**	21.03.2023

Result:	**N/A**	Notes: Number of cycles = 50

Test Method:	IEC 61215-2:2016, cl. 4.11

UNCERTAINTY (coverage factor k=2)

RH measurement = ± 1.5%	T measurement = ± 0.5°C

FOLLOWING MEASUREMENTS AND INSPECTIONS

HUMIDITY FREEZE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Starting date**	21.03.2023
Serial Number	¨C1BSM220627106671AK	**Ending date**	04.04.2023

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.12

UNCERTAINTY (coverage factor k=2)

RH measurement = ± 1.5%	T measurement = ± 0.5°C

FOLLOWING MEASUREMENTS AND INSPECTIONS

Visual Inspection
04.04.2023

PASSED

Performance at STC
05.04.2023

Pm	393.82 W
ΔPm(prev)	-0.74 %

Insulation Test
04.04.2023

Limit	> 40 Mohm*m²
Measure	976 Mohm*m²

ACCESSIBILITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Relevation 1	
Position	
Resistance	no data

Relevation 2	
Position	
Resistance	no data

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

No accessible active part found

GROUND CONTINUITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test Current	37.5 A

Relevation 1	
Voltage	0.03 V
Resistance	0 Ω

Relevation 2	
Voltage	0.03 V
Resistance	0 Ω

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

REVERSE CURRENTE OVERLOAD TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test current	20.300 A
Temperature after one hour	54.0 °C
Temperature after two hours	64.0 °C

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/1
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106671AK

Notes:	

RESULTS

Date	After	FRONT	CELLS	CONN	FRAME	REAR	JBOX	WIRES
14.03.2023	--	NOK	OK	OK	OK	NOK	OK	OK
04.04.2023	HUF	NOK	OK	OK	OK	NOK	OK	OK

Legend: NOK in green text means that the finding does not represent a major defect according to IEC 61215-1:2021 And IEC 61730-1:2016

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Foreign particles	0-0	0	Dirt residue on a cell

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	General view

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106671AK		

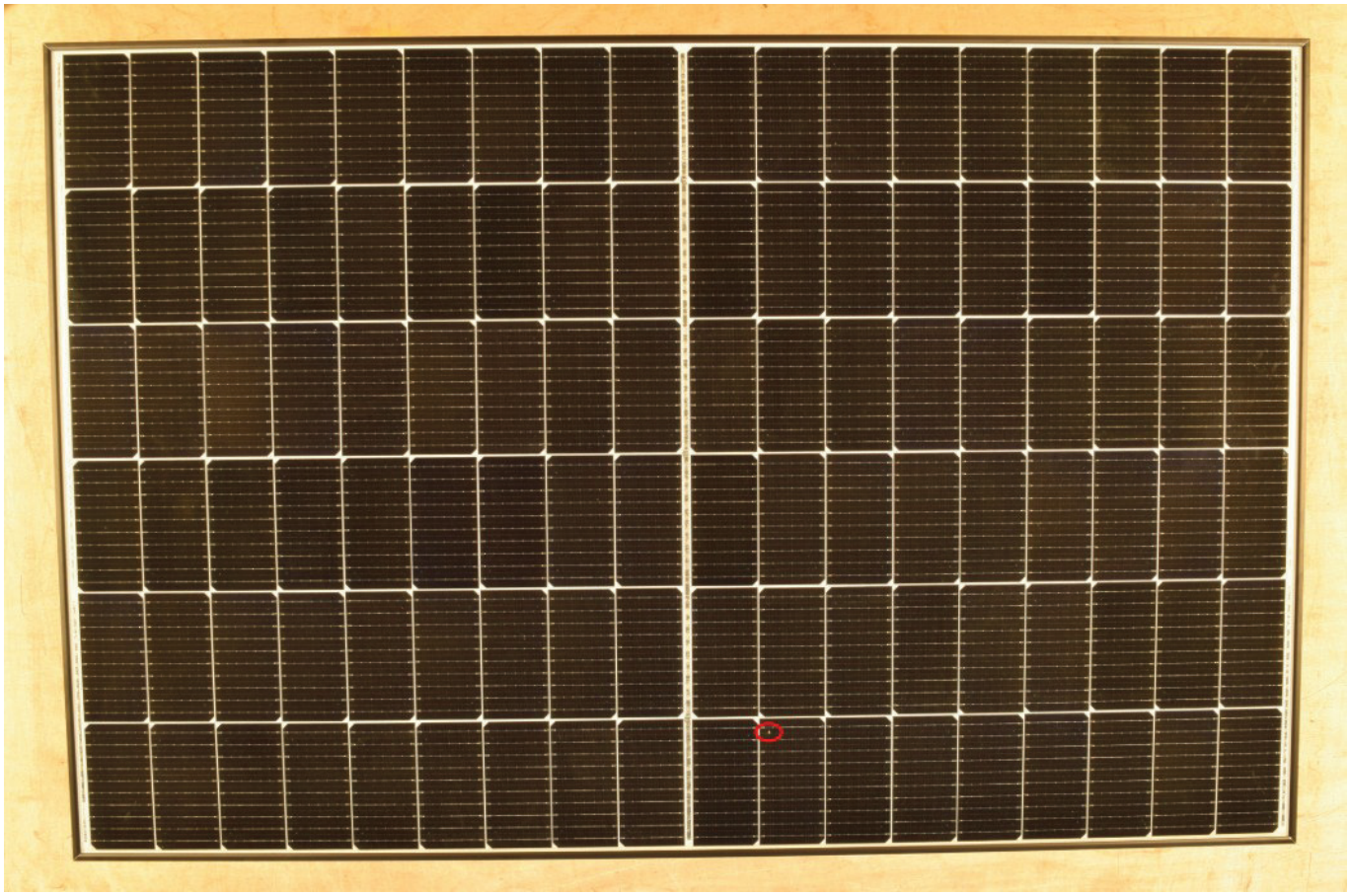
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Foreign particles	0-0	0	Dirt residue on a cell



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	General view

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Findings	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

SECTION REAR

Finding	Pos. (X-Y)	Dimension	Description
--	0-0	0	Loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate in some points
--	0-0	0	Loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate in the area near to the JB
--	0-0	0	Loss of adhesion (detachment) of one copper tube of the thermal exchanger from the aluminium plate

REMARKS / ADDITIONAL INFORMATION

Some point with loss of adhesion (detachments) of of the thermal exchanger after TC50 and Humidity and freeze test from the PV laminate. Such defect has no impact on the operation of the PV laminate.

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106671AK		

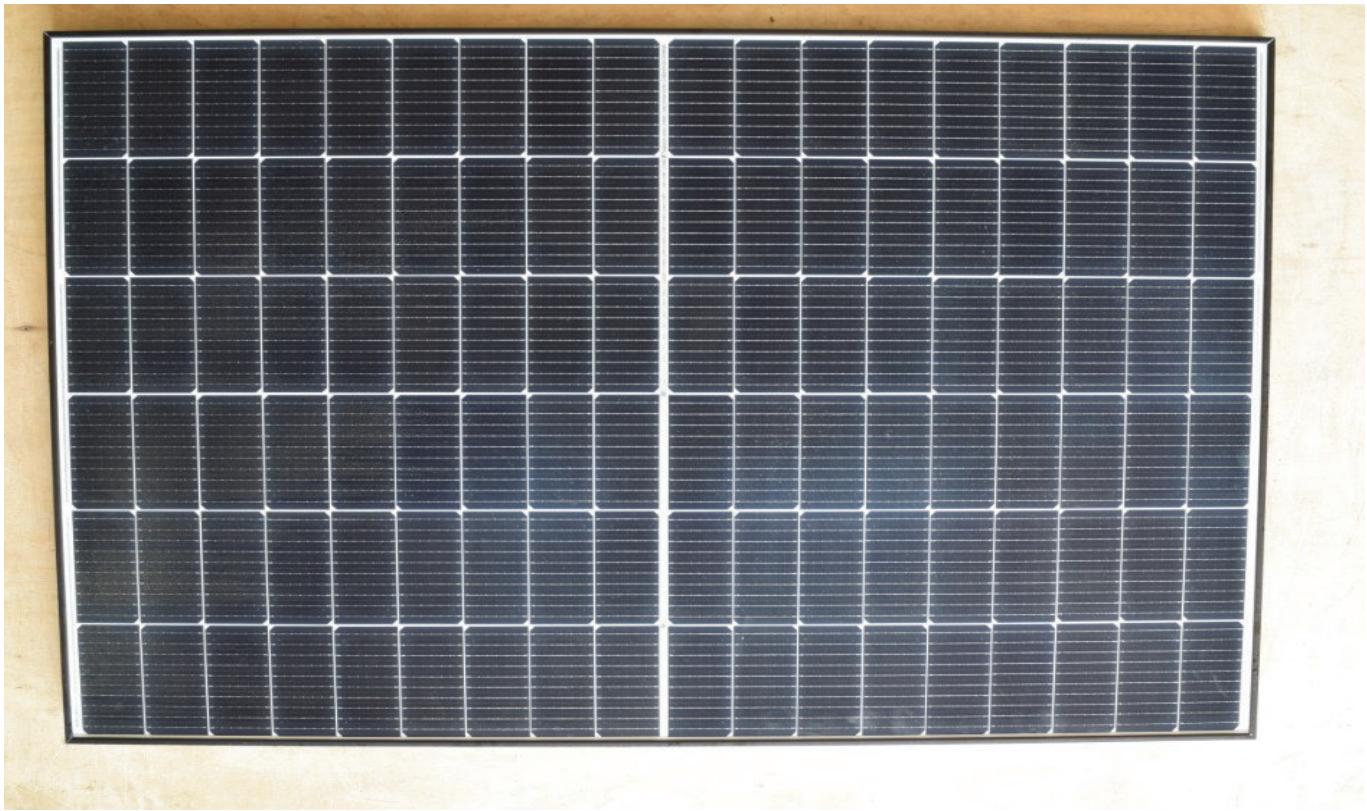
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Foreign particles	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106671AK		

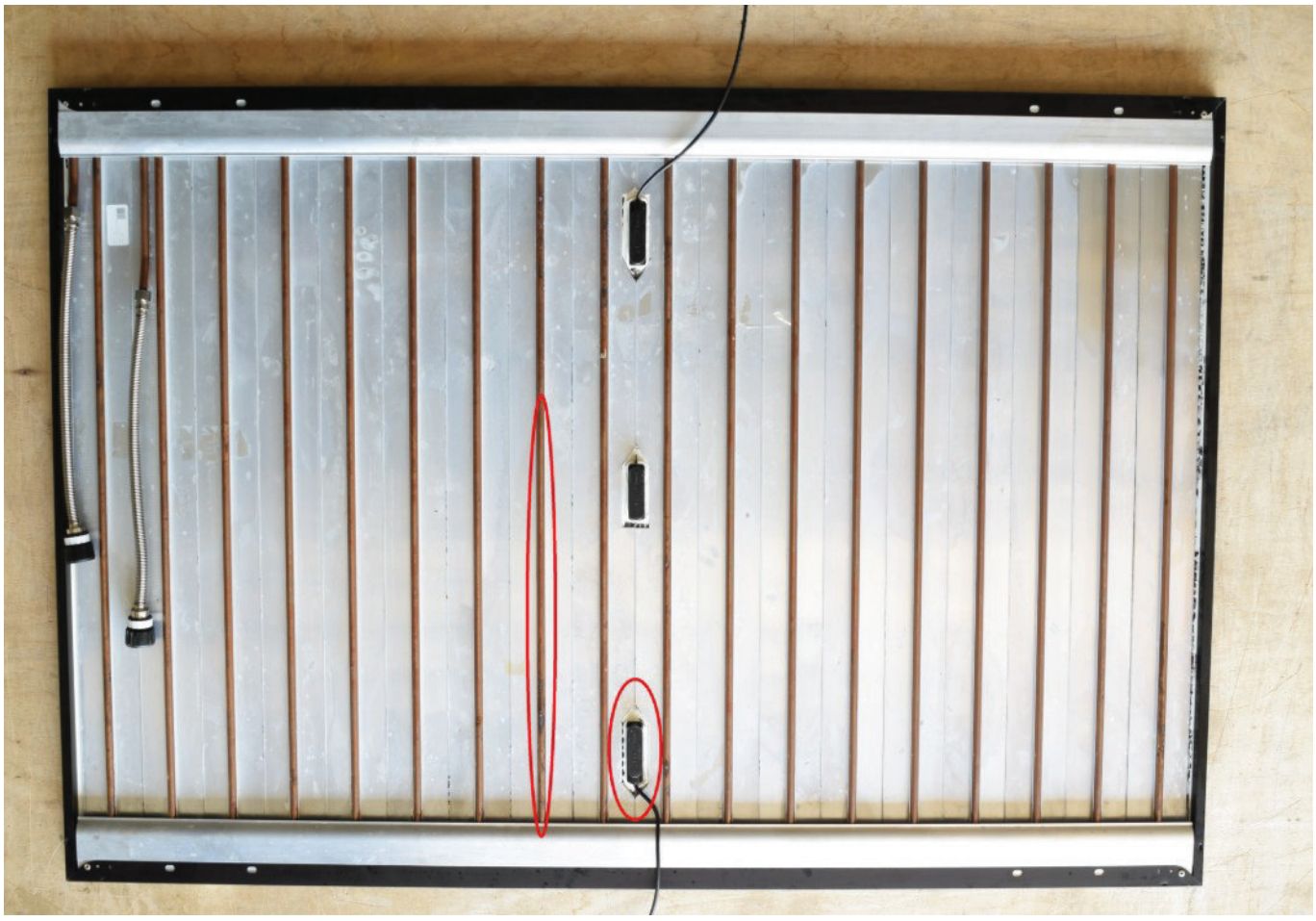
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
	0-0	0	Loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate in some points



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	Loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate in the area near to the JB

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Defect surfaces	0-0	0	Loss of adhesion (detachment) of one copper tube of the thermal exchanger from the aluminium plate

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/1
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106671AK

Test Method:	IEC 61215-2:2016, cl. 4.2

SUMMARY OF PERFORMANCES RESULTS

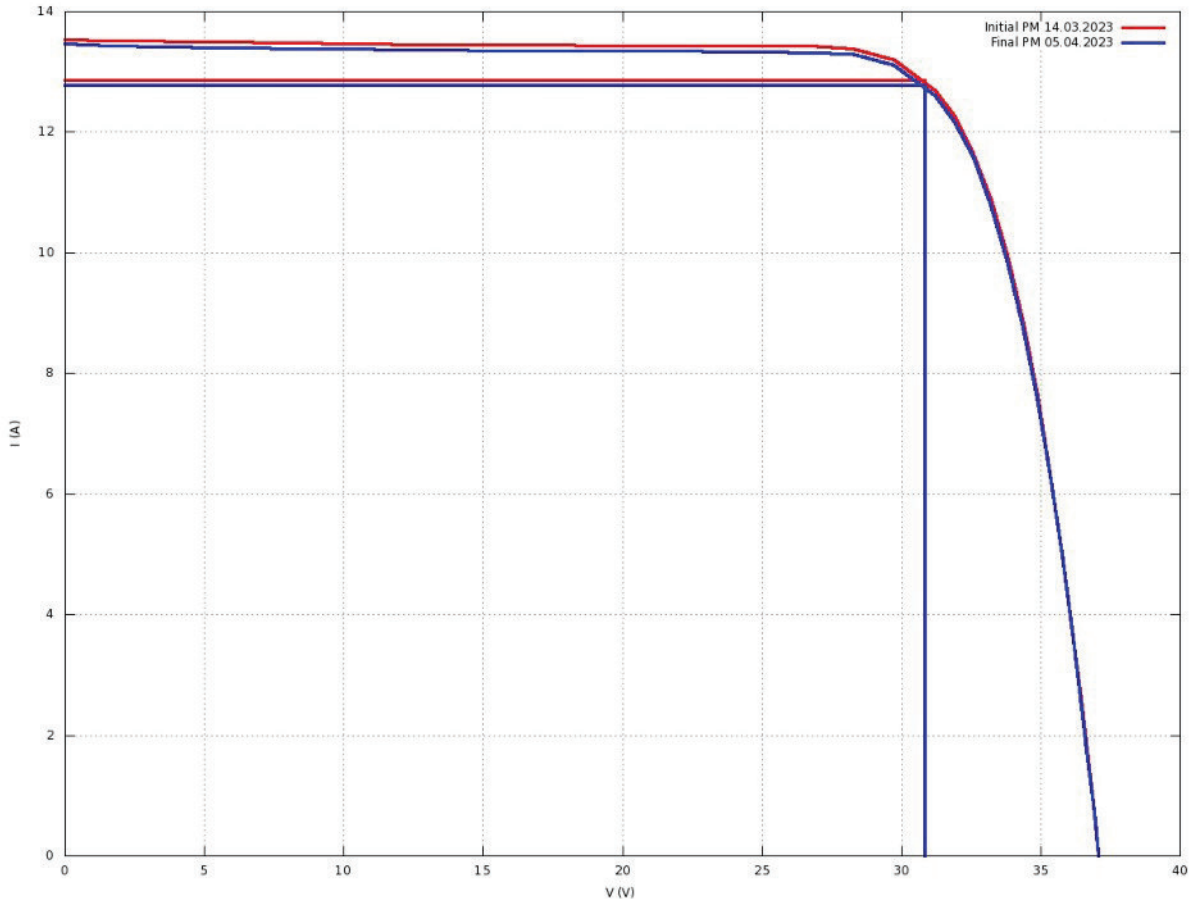
Date	After	Pm [W]	ΔPm [%]	Voc [V]	Isc [A]	Vm [V]	Im [A]	FF [%]
14.03.2023	--	396.74	N/A	37.07	13.528	30.86	12.856	79.1
05.04.2023	HUF	393.82	-0.74	37.08	13.465	30.83	12.774	78.9

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION	
Manufacturer	PVT Solar AG
Module Label	23-042/A/1
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106671AK

Test Method:	IEC 61215-2:2016, cl. 4.2

Comparison between first and last measurement



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	25.22 °C
Module Temperature	25.1 °C
Mean Irradiance	1002.7 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	396.74 W
Vmp	30.86 V
Imp	12.856 A
Voc	37.07 V
Isc	13.528 A
Fill factor	79.1 %
Module efficiency	20.3 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.71 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

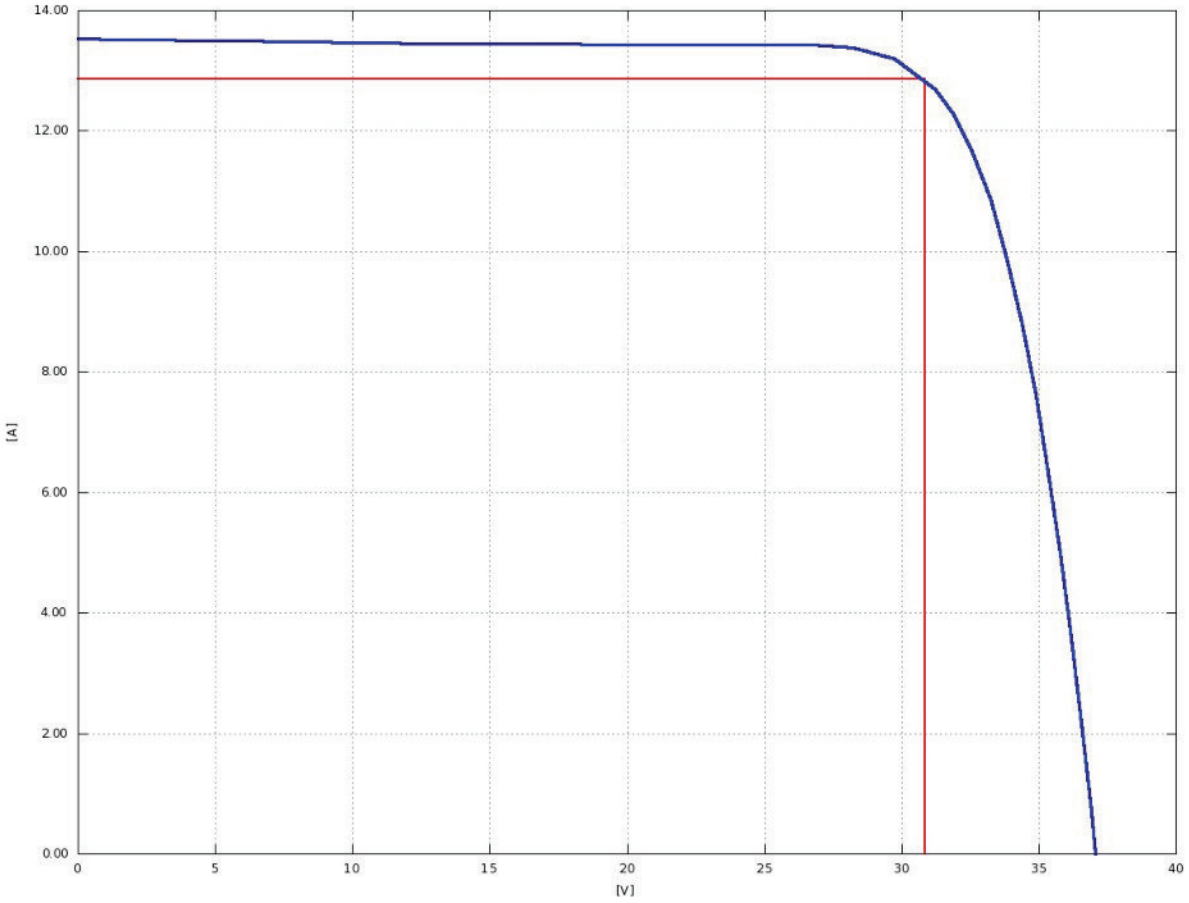
The measured power output is significantly lower than the rated value

ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	05.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	25.31 °C
Module Temperature	24.9 °C
Mean Irradiance	1004.7 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	393.82 W
Vmp	30.83 V
Imp	12.774 A
Voc	37.08 V
Isc	13.465 A
Fill factor	78.9 %
Module efficiency	20.2 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.63 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

Power loss below -5%

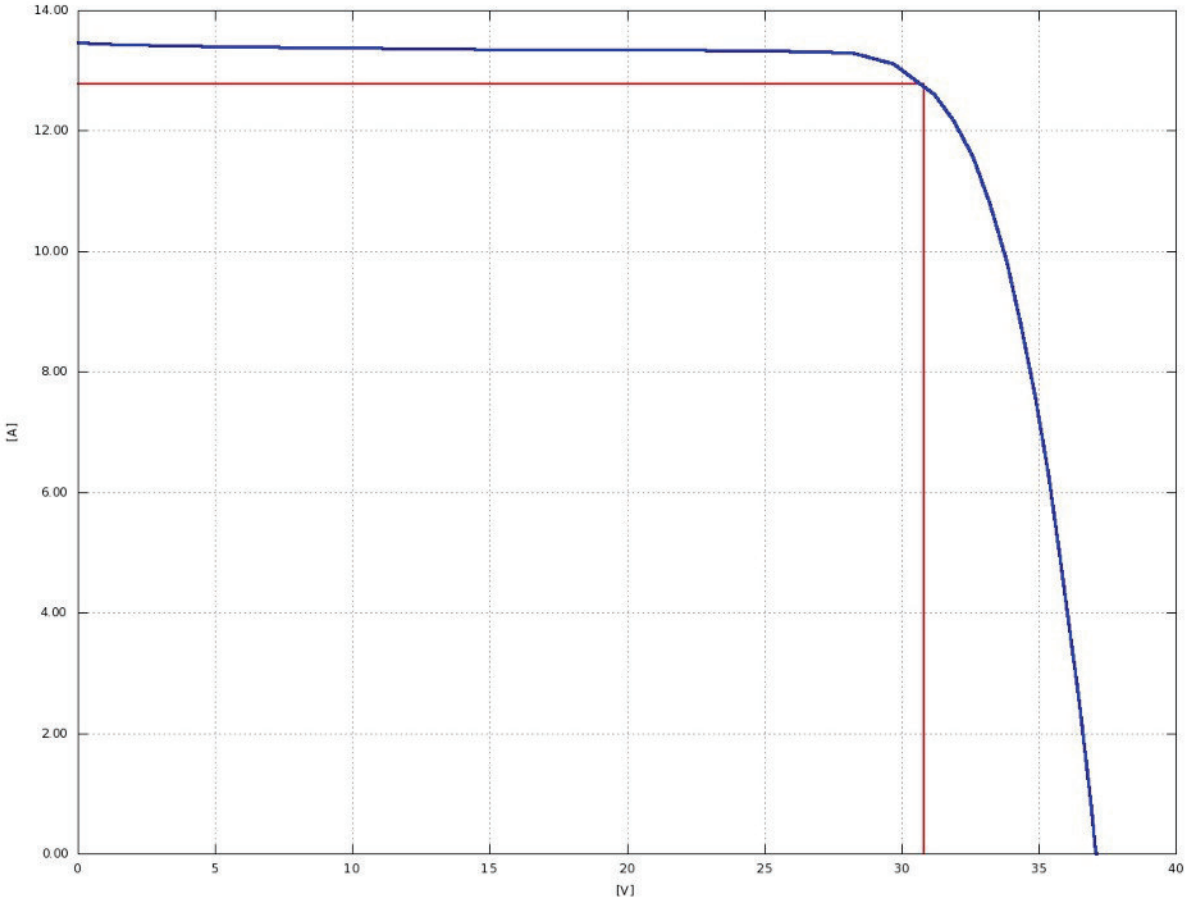
ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	05.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



INSULATION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/1
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106671AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	RH	Notes
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	35.0 %	
04.04.2023	HUF	500.0 Mohm	976.0 Mohm * m²	22.0 %	

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	35 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106671AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	22 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/1
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106671AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	Water temperature	Water conducibility
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	21.0 °C	850.0 ∝S
04.04.2023	HUF	500.0 Mohm	976.0 Mohm * m²	20.0 °C	920.0 ∝S

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106671AK	**Ending date**	14.03.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	21 °C
Water conducibility	850 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Starting date**	04.04.2023
Serial Number	¨C1BSM220627106671AK	**Ending date**	04.04.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	20 °C
Water conducibility	920 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

ELECTROLUMINESCENCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/1
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106671AK

Notes:	

RESULTS

Date	After	ITest [A]
14.03.2023	--	13.000
05.04.2023	HUF	13.000

ELECTROLUMINESCENCE

GENERAL INFORMATION

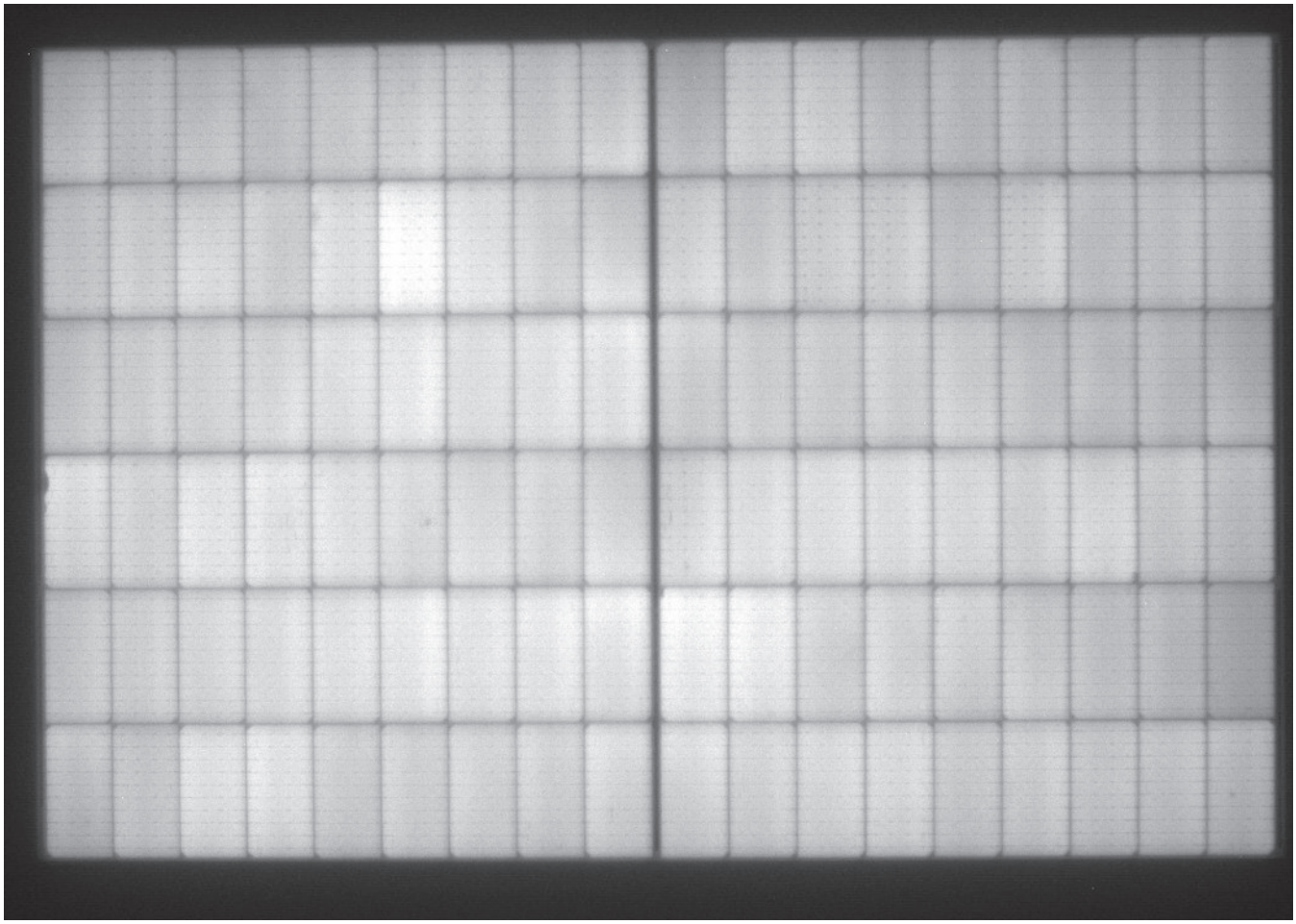
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106671AK	**Ending date**	14.03.2023

Result:	**N/A**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



ELECTROLUMINESCENCE

GENERAL INFORMATION

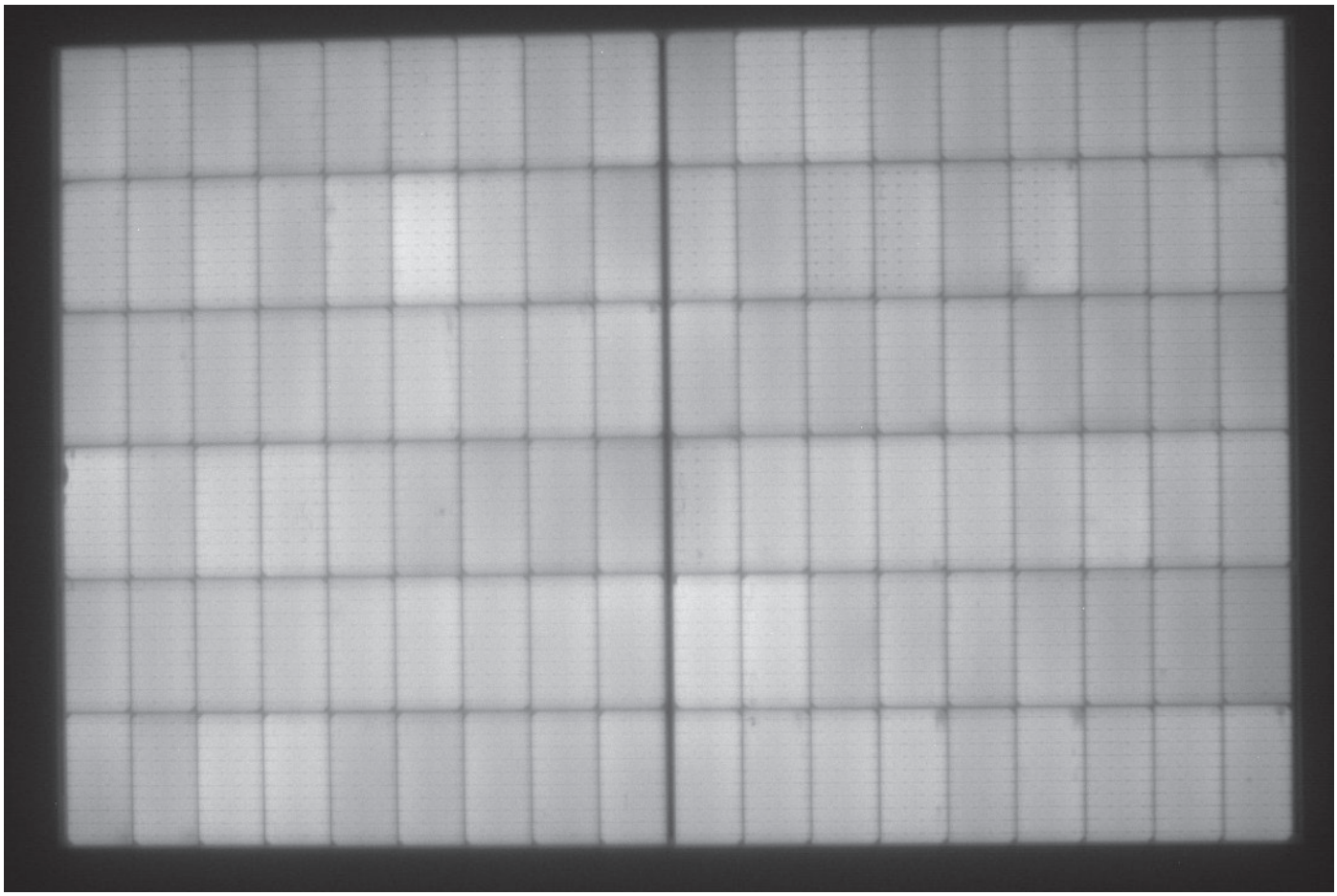
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/1
Model	BlackDiamond BSM-425	**Starting date**	05.04.2023
Serial Number	¨C1BSM220627106671AK	**Ending date**	05.04.2023

Result:	**PASSED**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



MODULE 23-042/A/2
TEST RESULTS

GENERAL INFORMATION	
Manufacturer	PVT Solar AG
Module label	23-042/A/2
Type	BlackDiamond BSM-425
Serial number	¨C1BSM220627106665AK

REMARKS

THERMAL CYCLING TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106665AK	**Ending date**	21.03.2023

Result:	**N/A**	Notes: Number of cycles = 50

Test Method:	IEC 61215-2:2016, cl. 4.11

UNCERTAINTY (coverage factor k=2)

RH measurement = ± 1.5%	T measurement = ± 0.5°C

FOLLOWING MEASUREMENTS AND INSPECTIONS

HUMIDITY FREEZE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Starting date**	21.03.2023
Serial Number	¨C1BSM220627106665AK	**Ending date**	04.04.2023

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.12

UNCERTAINTY (coverage factor k=2)

RH measurement = ± 1.5%	T measurement = ± 0.5°C

FOLLOWING MEASUREMENTS AND INSPECTIONS

Visual Inspection
04.04.2023

PASSED

Performance at STC
14.04.2023

Pm	392.48 W
ΔPm(prev)	-1.14 %

Insulation Test
04.04.2023

Limit	> 40 Mohm*m²
Measure	976 Mohm*m²

ACCESSIBILITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Relevation 1	
Position	
Resistance	no data

Relevation 2	
Position	
Resistance	no data

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

No accessible active part found

GROUND CONTINUITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test Current	37.5 A

Relevation 1	
Voltage	0.02 V
Resistance	0 Ω

Relevation 2	
Voltage	0.02 V
Resistance	0 Ω

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

REVERSE CURRENTE OVERLOAD TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test current	33.750 A
Temperature after one hour	63.0 °C
Temperature after two hours	88.0 °C

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

The maximum protection rating is assumed = 25A.

VISUAL INSPECTION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/2
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106665AK

Notes:	

RESULTS

Date	After	FRONT	CELLS	CONN	FRAME	REAR	JBOX	WIRES
14.03.2023	--	OK	OK	OK	OK	OK	OK	OK
04.04.2023	HUF	OK	OK	OK	OK	OK	OK	OK

NOK in green text means that the finding does not represent a major defect according to IEC 61215-1:2021 and IEC 61730-2:2016.

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106665AK		

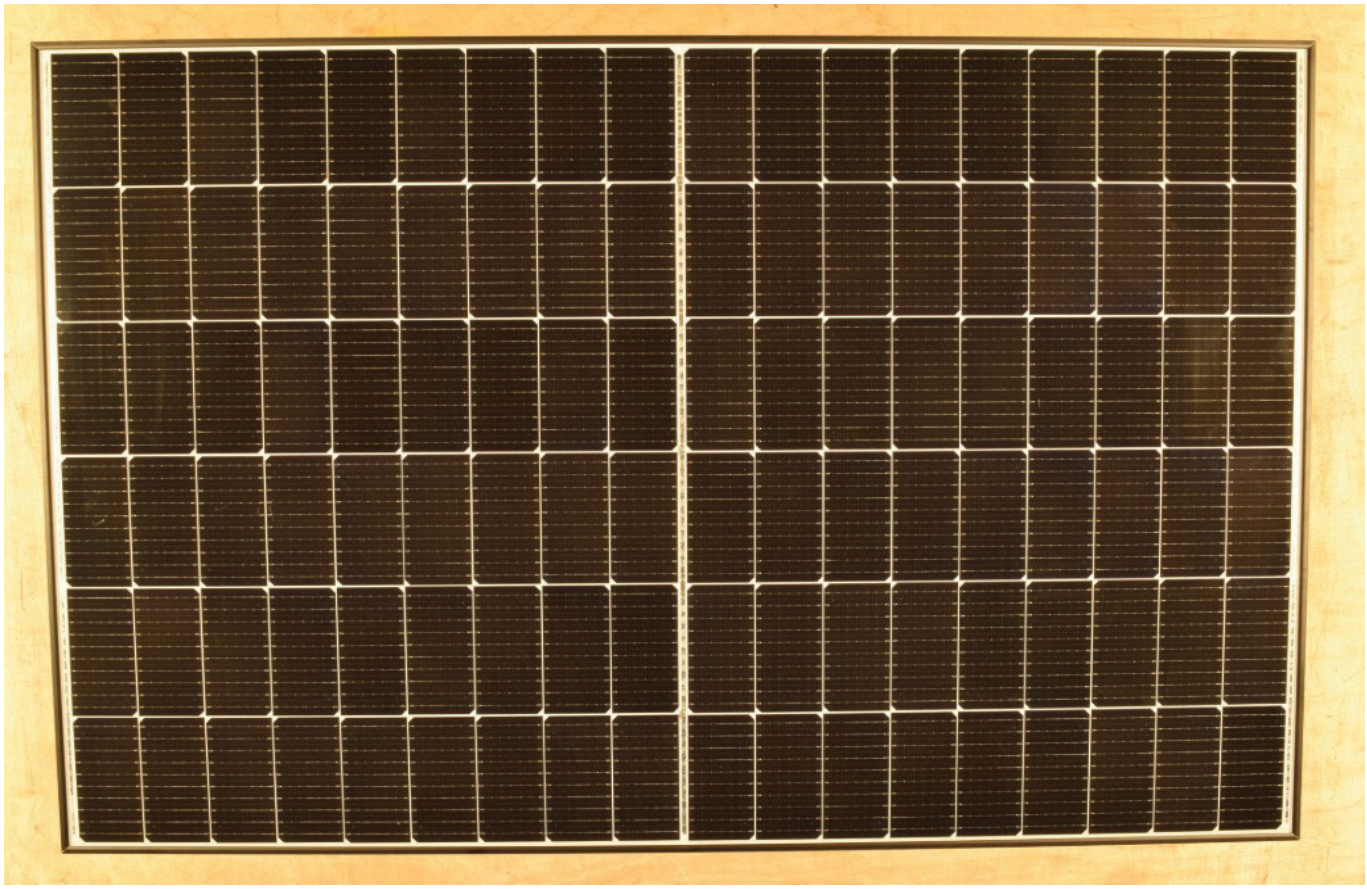
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Foreign particles	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	General view

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Foreign particles	0-0	0	General view

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	Loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate in some points
Other	0-0	0	Detail of the loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate
Other	0-0	0	Loss of adhesion (detachment) of one copper tube of the thermal exchanger from the aluminium plate

REMARKS / ADDITIONAL INFORMATION

Some point shown loss of adhesion (detachments) of of the thermal exchanger after TC50 and Humidity and freeze test from the PV laminate. Such defect has no impact on the operation and safety of the PV laminate

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106665AK		

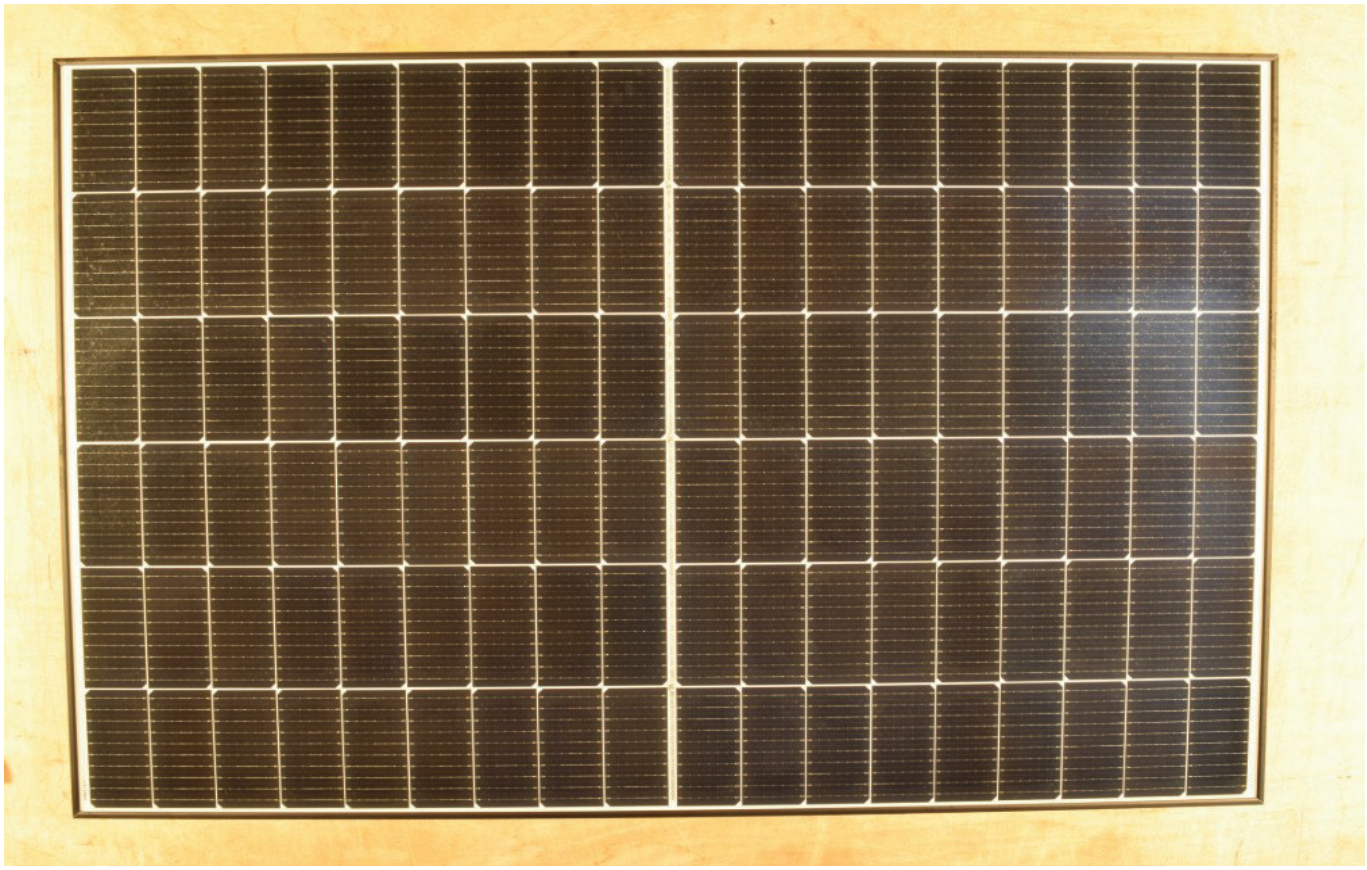
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106665AK		

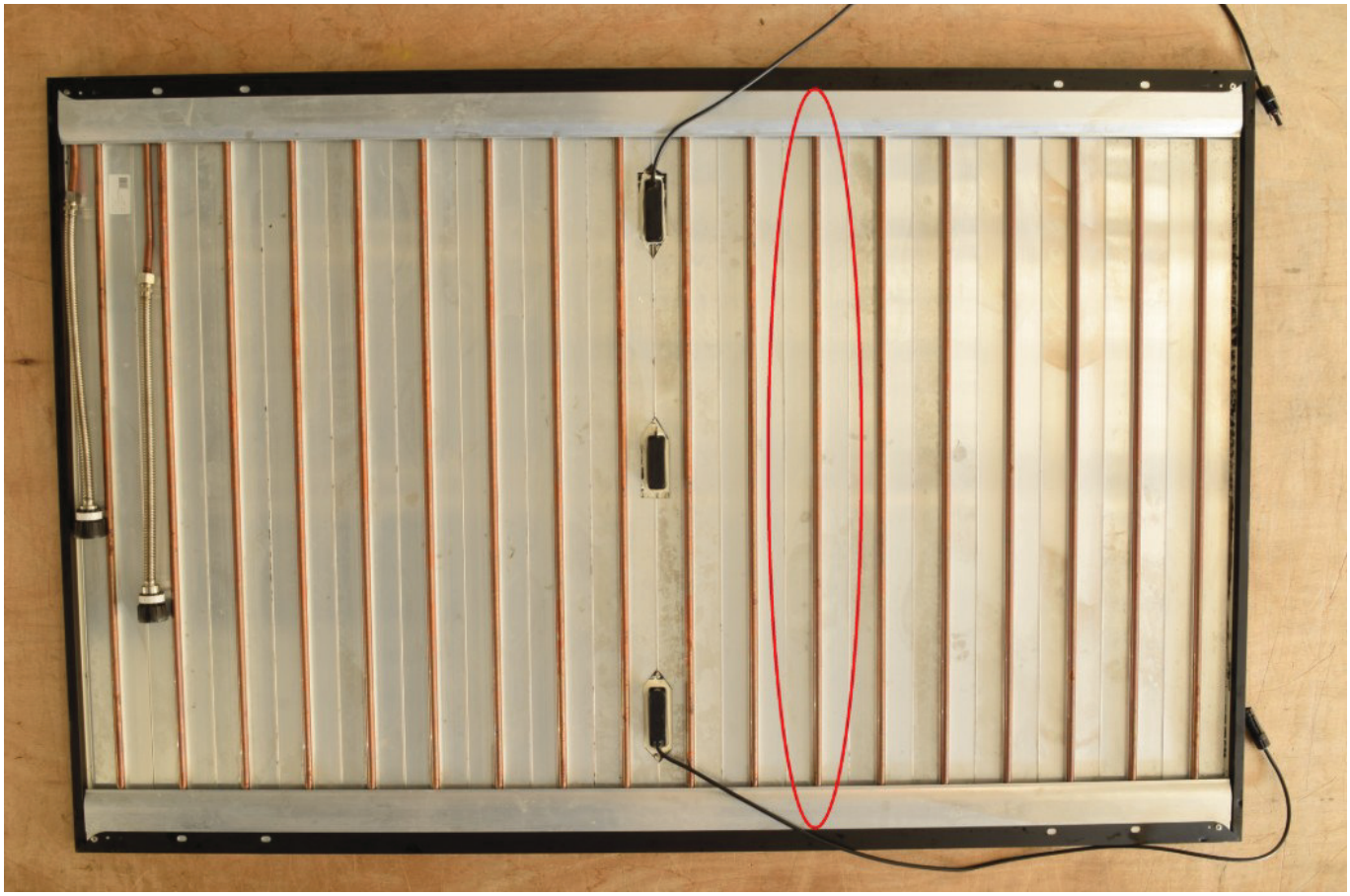
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	Loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate in some points



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106665AK		

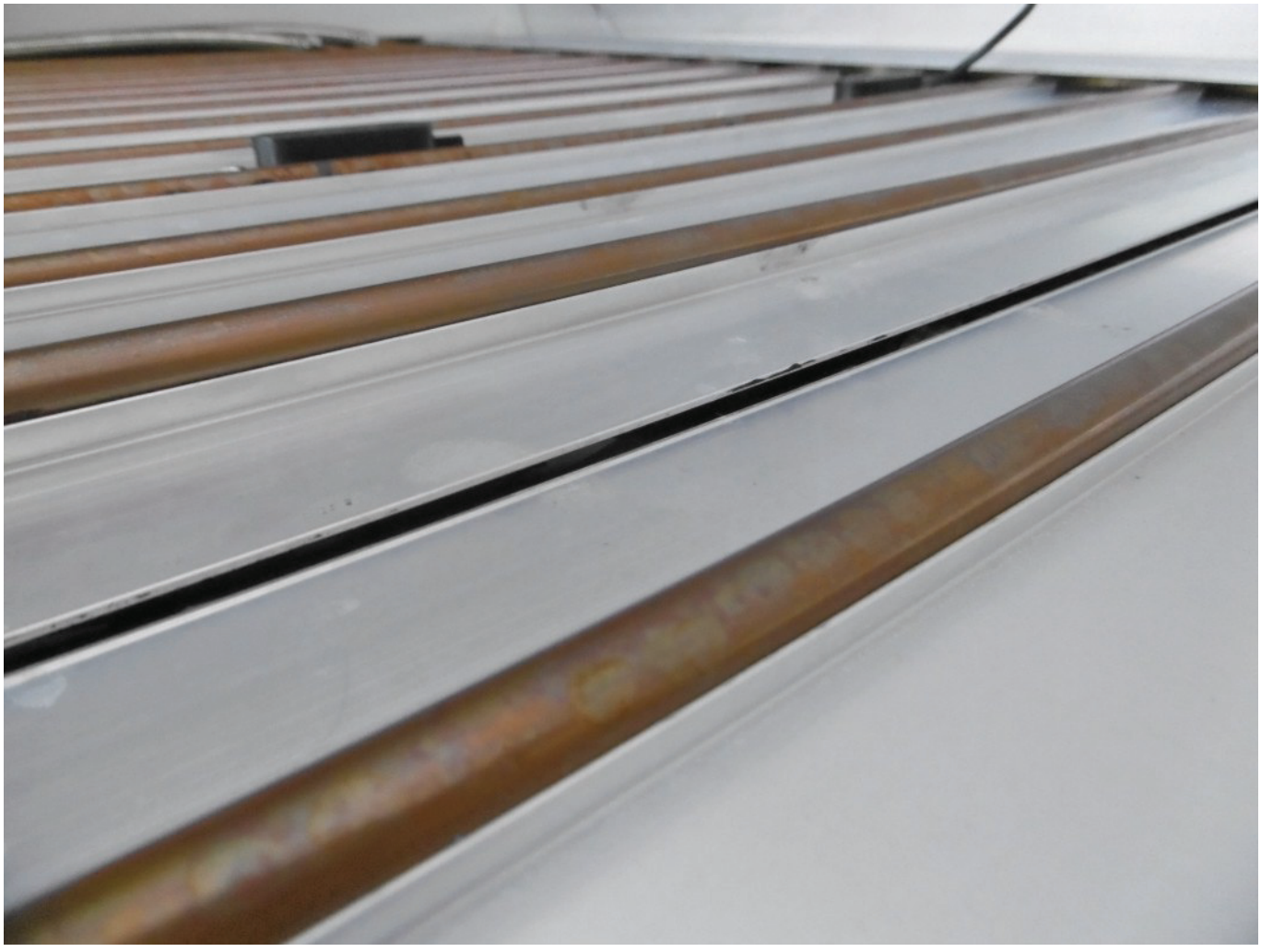
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	Detail of the loss of adhesion (detachment) of the thermal exchanger plate from the PV laminate



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	Loss of adhesion (detachment) of one copper tube of the thermal exchanger from the aluminium plate

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/2
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106665AK

Test Method:	IEC 61215-2:2016, cl. 4.2

SUMMARY OF PERFORMANCES RESULTS

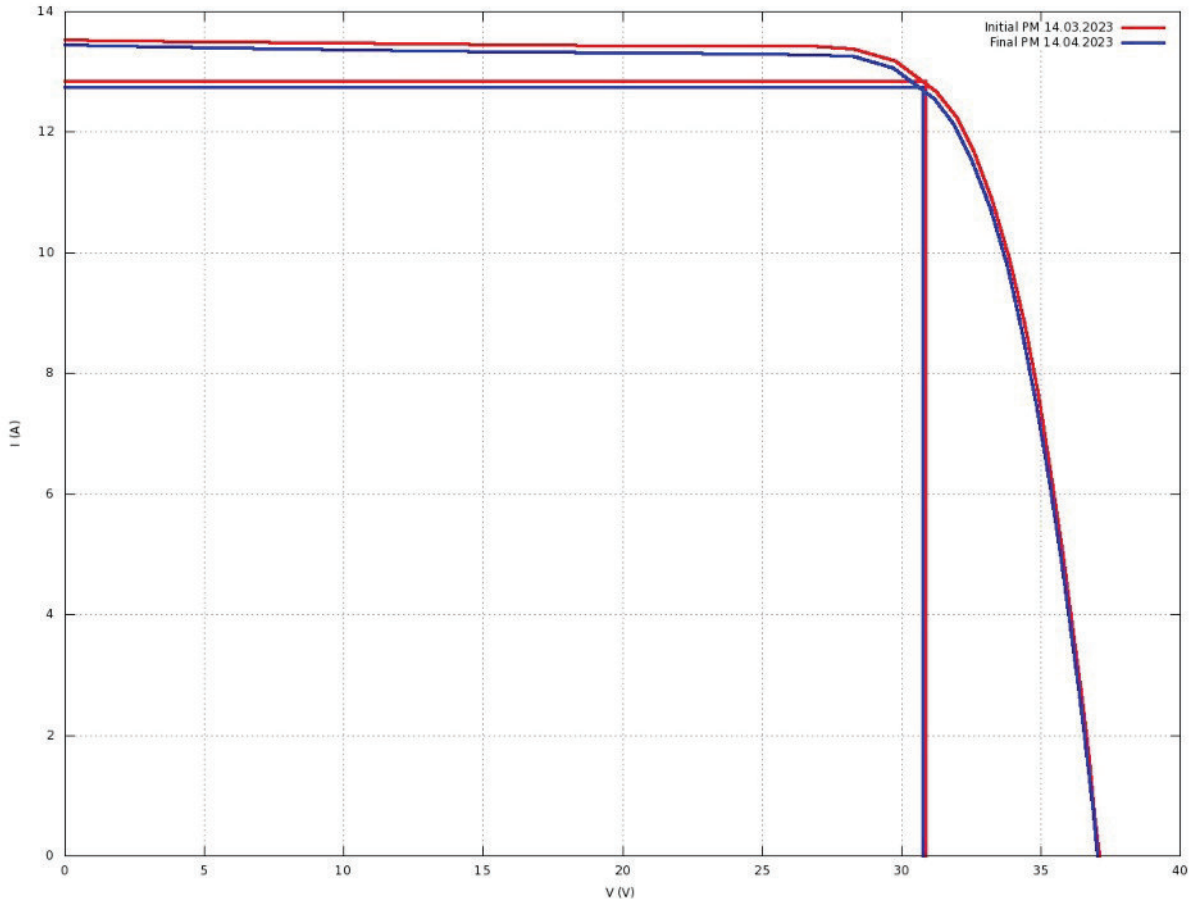
Date	After	Pm [W]	ΔPm [%]	Voc [V]	Isc [A]	Vm [V]	Im [A]	FF [%]
14.03.2023	--	397.00	N/A	37.10	13.525	30.89	12.852	79.1
14.04.2023	HUF	392.48	-1.14	37.05	13.442	30.78	12.751	78.8

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION	
Manufacturer	PVT Solar AG
Module Label	23-042/A/2
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106665AK

Test Method:	IEC 61215-2:2016, cl. 4.2

Comparison between first and last measurement



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	25.13 °C
Module Temperature	24.5 °C
Mean Irradiance	1002.4 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	397.00 W
Vmp	30.89 V
Imp	12.852 A
Voc	37.10 V
Isc	13.525 A
Fill factor	79.1 %
Module efficiency	20.3 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.72 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

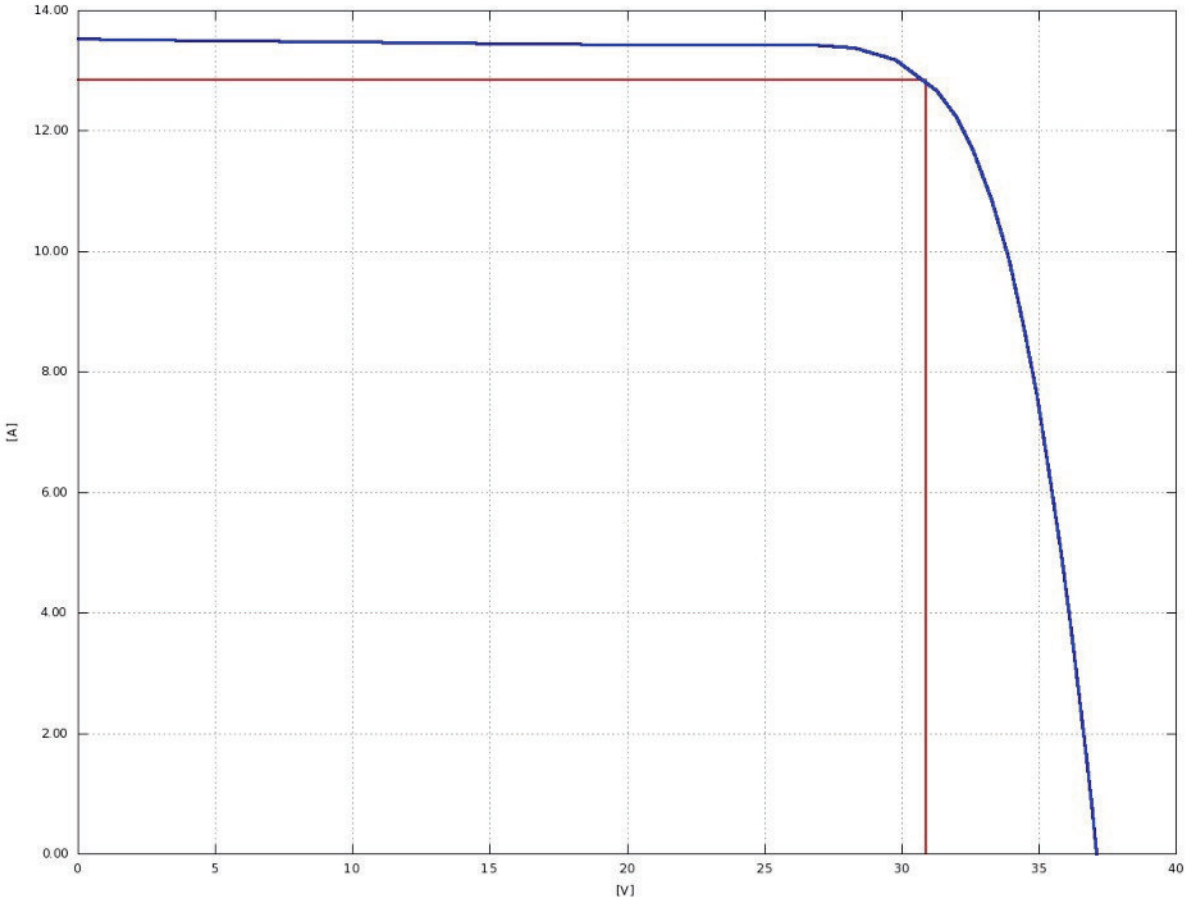
The measured power output is significantly lower than the rated value

ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	25.34 °C
Module Temperature	25.1 °C
Mean Irradiance	1004.6 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	392.48 W
Vmp	30.78 V
Imp	12.751 A
Voc	37.05 V
Isc	13.442 A
Fill factor	78.8 %
Module efficiency	20.1 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.60 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

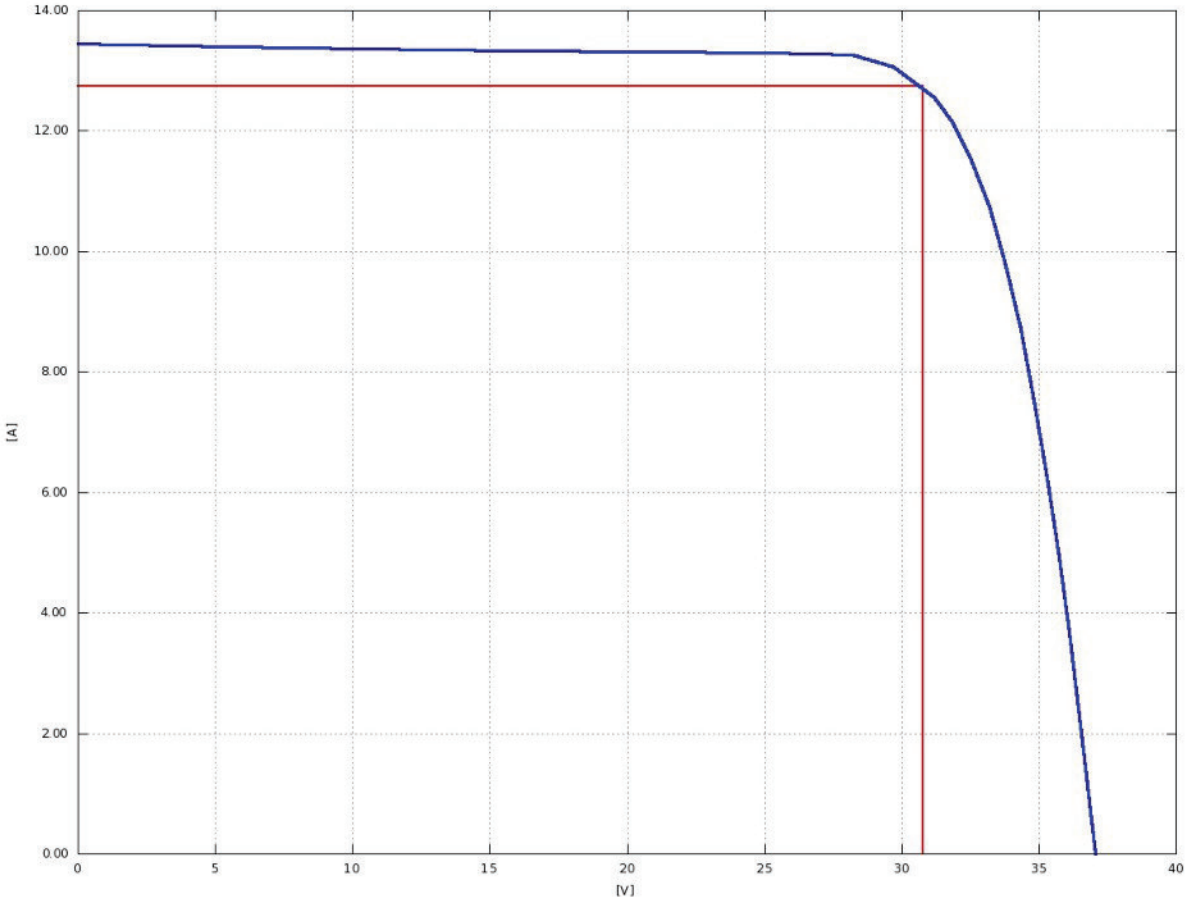
Power loss below -5%

ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



INSULATION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/2
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106665AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	RH	Notes
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	35.0 %	
04.04.2023	HUF	500.0 Mohm	976.0 Mohm * m²	22.0 %	

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	35 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Date of Measurement**	04.04.2023
Serial Number	¨C1BSM220627106665AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	22 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/2
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106665AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	Water temperature	Water conducibility
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	21.0 °C	850.0 ∝S
13.04.2023	HUF	500.0 Mohm	976.0 Mohm * m²	20.0 °C	920.0 ∝S

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106665AK	**Ending date**	14.03.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	21 °C
Water conducibility	850 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Starting date**	13.04.2023
Serial Number	¨C1BSM220627106665AK	**Ending date**	13.04.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	20 °C
Water conducibility	920 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

ELECTROLUMINESCENCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/2
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106665AK

Notes:	

RESULTS

Date	After	ITest [A]
14.03.2023	--	13.000
14.04.2023	HUF	13.000

ELECTROLUMINESCENCE

GENERAL INFORMATION

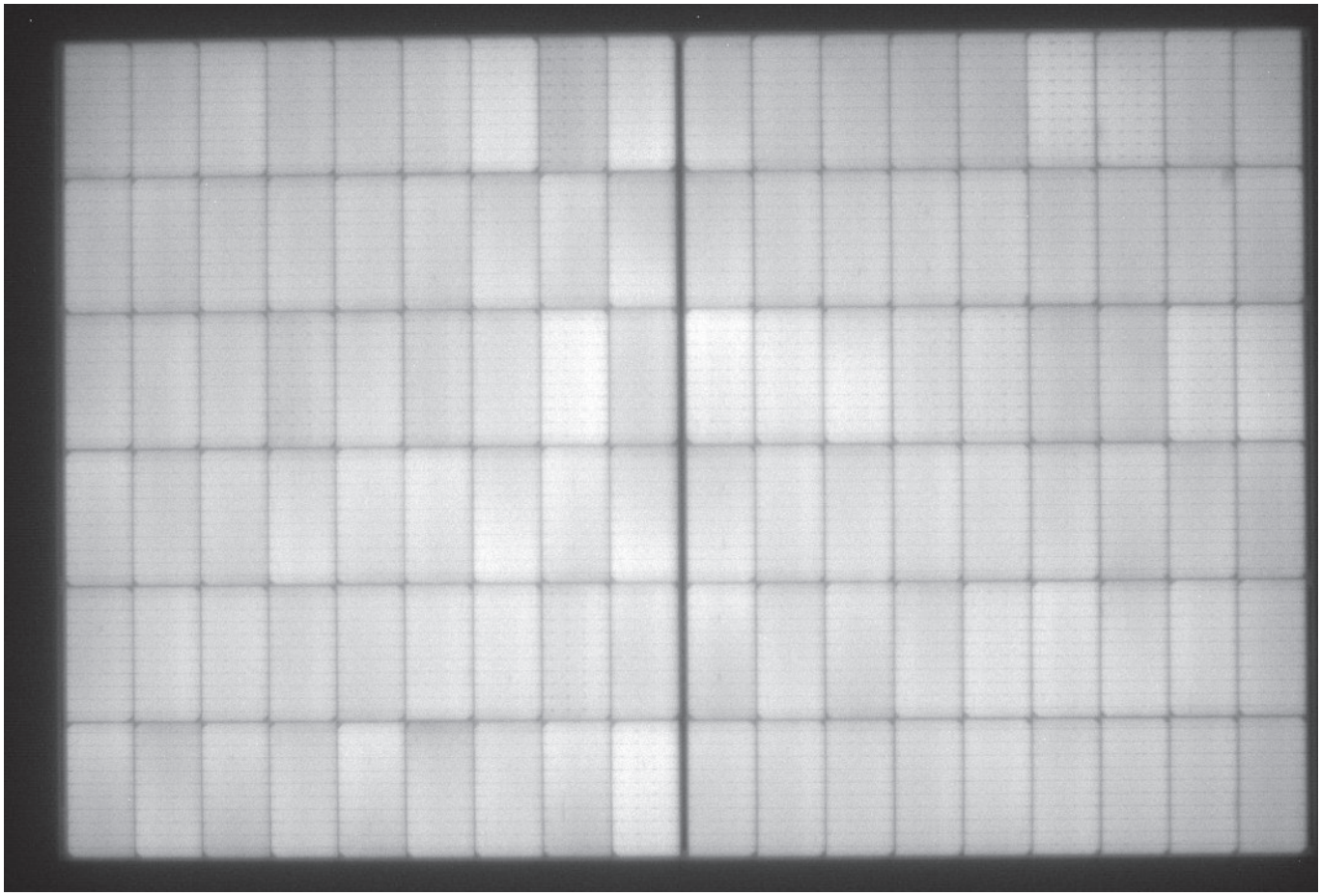
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106665AK	**Ending date**	14.03.2023

Result:	**N/A**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



ELECTROLUMINESCENCE

GENERAL INFORMATION

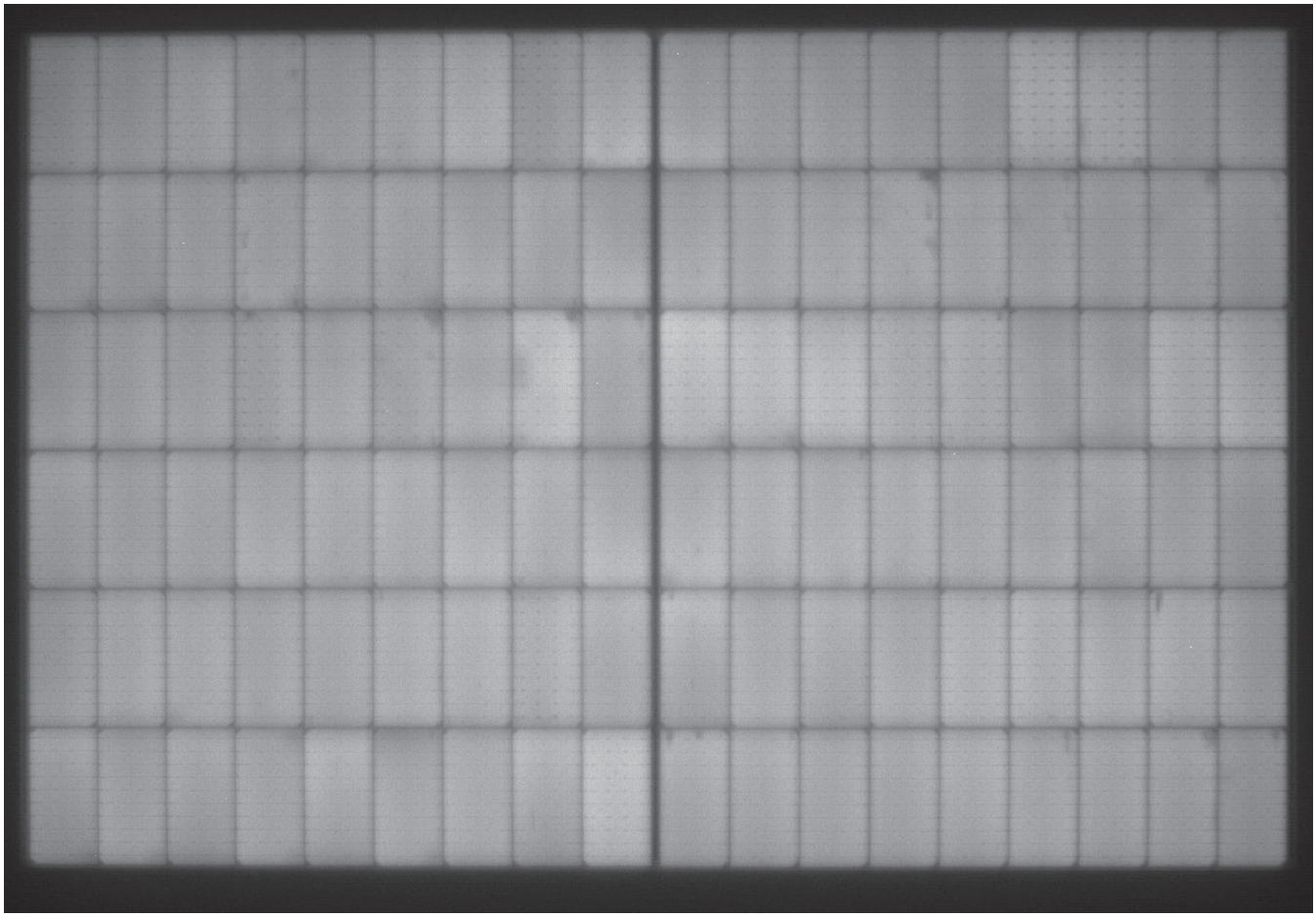
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/2
Model	BlackDiamond BSM-425	**Starting date**	14.04.2023
Serial Number	¨C1BSM220627106665AK	**Ending date**	14.04.2023

Result:	**PASSED**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



MODULE 23-042/A/3
TEST RESULTS

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module label	23-042/A/3
Type	BlackDiamond BSM-425
Serial number	¨C1BSM220627106493AK

REMARKS

DAMP HEAT TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106493AK	**Ending date**	02.05.2023

Result:	**N/A**	Notes: T = 85 °C; RH = 85%

Test Method:	IEC 61215-2:2016, cl. 4.13

UNCERTAINTY (coverage factor k=2)

RH measurement = ± 2.5%	T measurement = ± 1.0°C

REMARKS / ADDITIONAL INFORMATION

FOLLOWING MEASUREMENTS AND INSPECTIONS

Visual Inspection
02.05.2023

PASSED

Performance at STC
02.05.2023

Pm	384.51 W
ΔPm(prev)	-3.13 %

Insulation Test
02.05.2023

Limit	> 40 Mohm*m²
Measure	976 Mohm*m²

ACCESSIBILITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	03.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Relevation 1	
Position	
Resistance	no data

Relevation 2	
Position	
Resistance	no data

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

No accessible active part found

GROUND CONTINUITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	03.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test Current	37.5 A

Relevation 1	
Voltage	0.02 V
Resistance	0 Ω

Relevation 2	
Voltage	0.02 V
Resistance	0 Ω

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

REVERSE CURRENTE OVERLOAD TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	03.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test current	20.300 A
Temperature after one hour	54.0 °C
Temperature after two hours	63.0 °C

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/3
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106493AK

Notes:	

RESULTS

Date	After	FRONT	CELLS	CONN	FRAME	REAR	JBOX	WIRES
14.03.2023	--	OK	OK	OK	OK	OK	OK	OK
02.05.2023	DAH	OK	OK	OK	OK	OK	OK	OK

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106493AK		

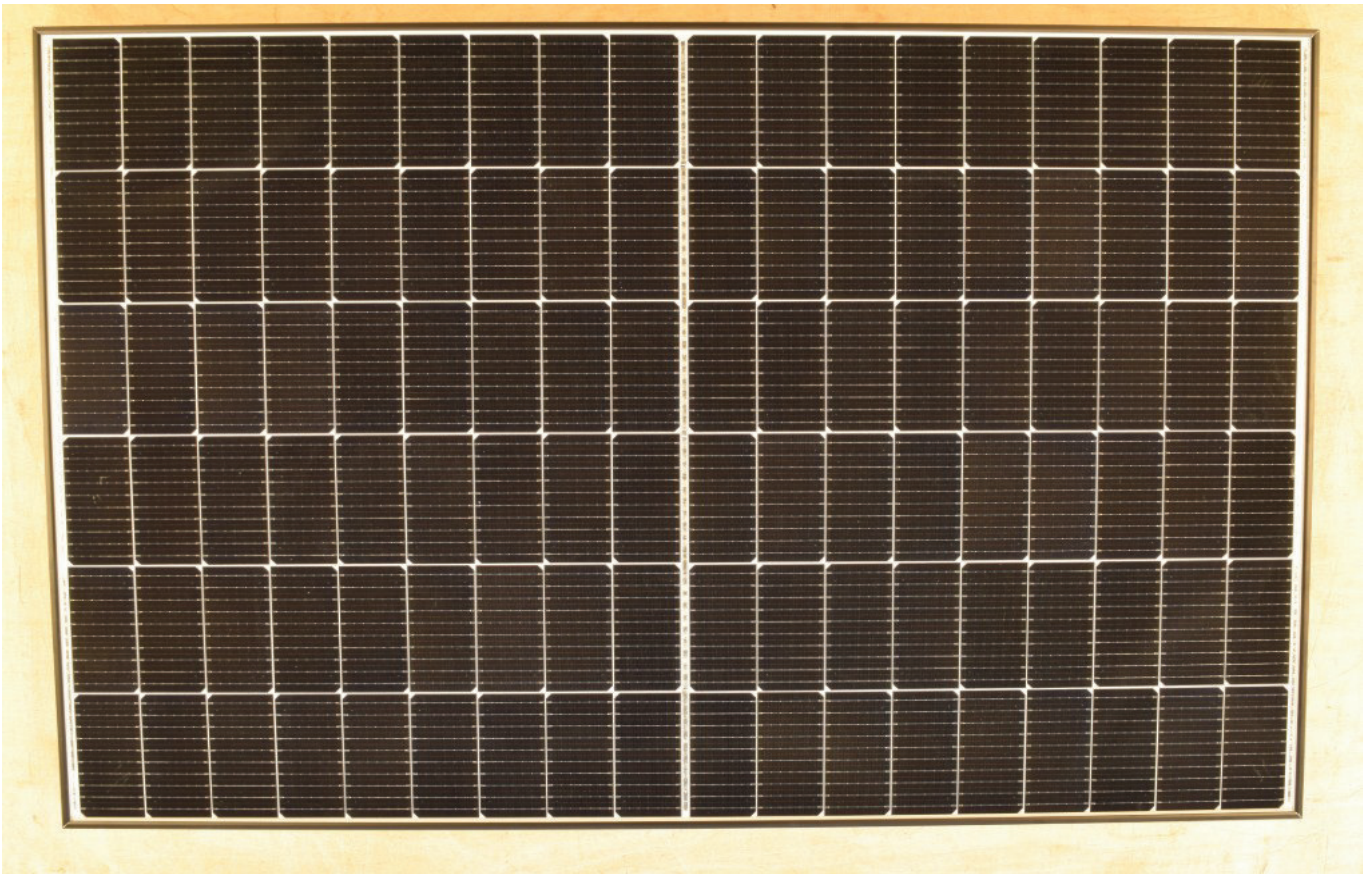
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

REMARKS / ADDITIONAL INFORMATION

No additional visual defect after Damp Heat test (1000h)

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106493AK		

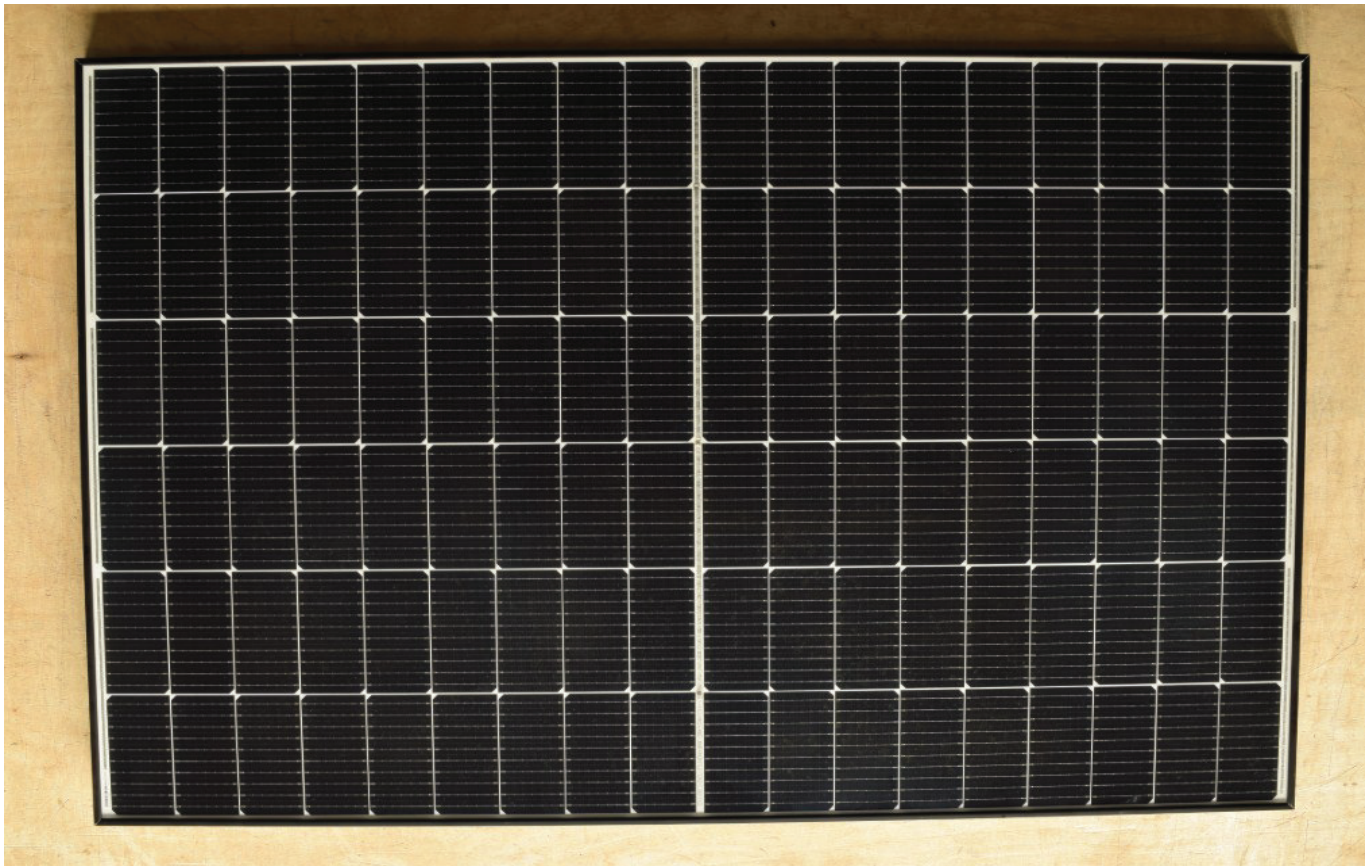
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/3
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106493AK

Test Method:	IEC 61215-2:2016, cl. 4.2

SUMMARY OF PERFORMANCES RESULTS

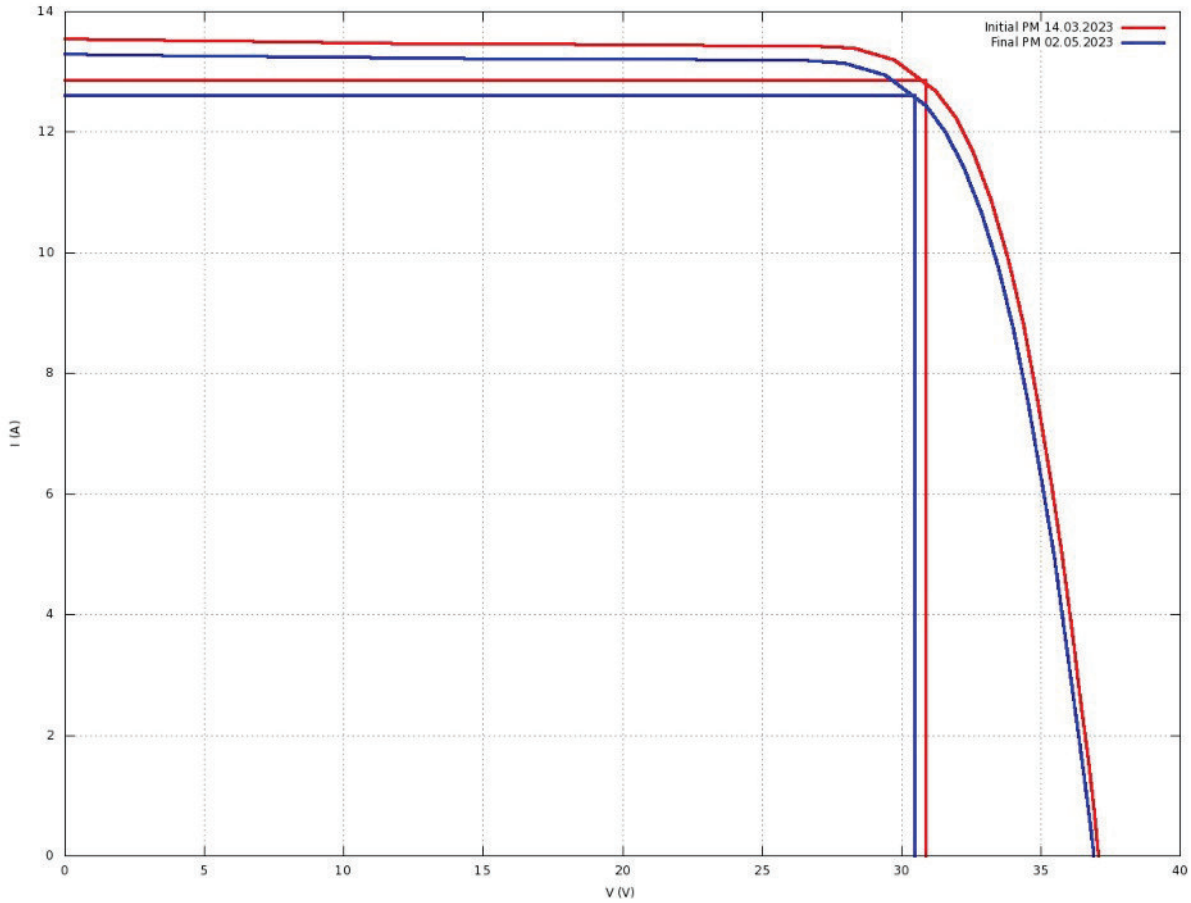
Date	After	Pm [W]	ΔPm [%]	Voc [V]	Isc [A]	Vm [V]	Im [A]	FF [%]
14.03.2023	--	396.95	N/A	37.07	13.542	30.86	12.863	79.1
02.05.2023	DAH	384.51	-3.13	36.89	13.305	30.48	12.615	78.3

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION	
Manufacturer	PVT Solar AG
Module Label	23-042/A/3
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106493AK

Test Method:	IEC 61215-2:2016, cl. 4.2

Comparison between first and last measurement



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	25.13 °C
Module Temperature	24.8 °C
Mean Irradiance	1002.3 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	396.95 W
Vmp	30.86 V
Imp	12.863 A
Voc	37.07 V
Isc	13.542 A
Fill factor	79.1 %
Module efficiency	20.3 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.72 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

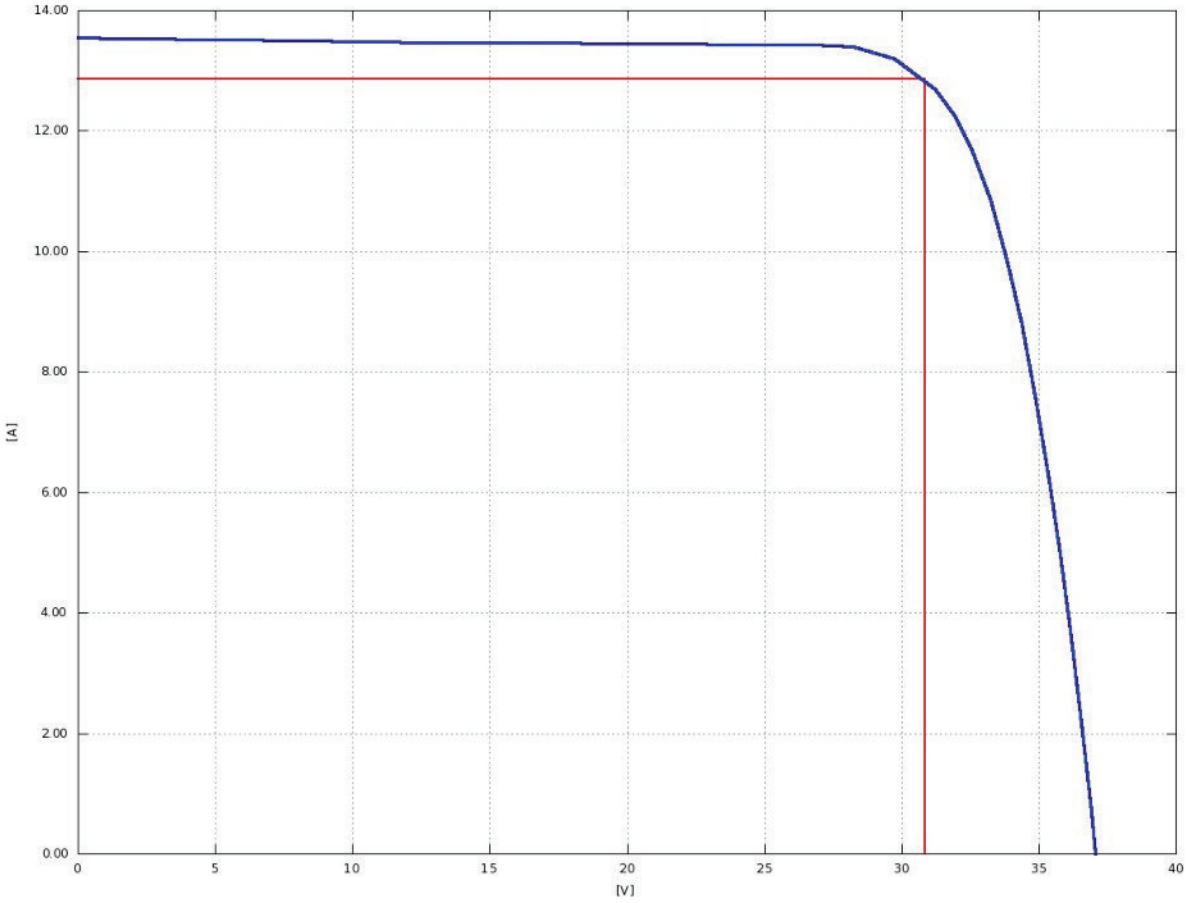
The measured power output is significantly lower than the rated value

ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	24.77 °C
Module Temperature	24.5 °C
Mean Irradiance	1003.4 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	384.51 W
Vmp	30.48 V
Imp	12.615 A
Voc	36.89 V
Isc	13.305 A
Fill factor	78.3 %
Module efficiency	19.7 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.38 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

Power output loss below -5%

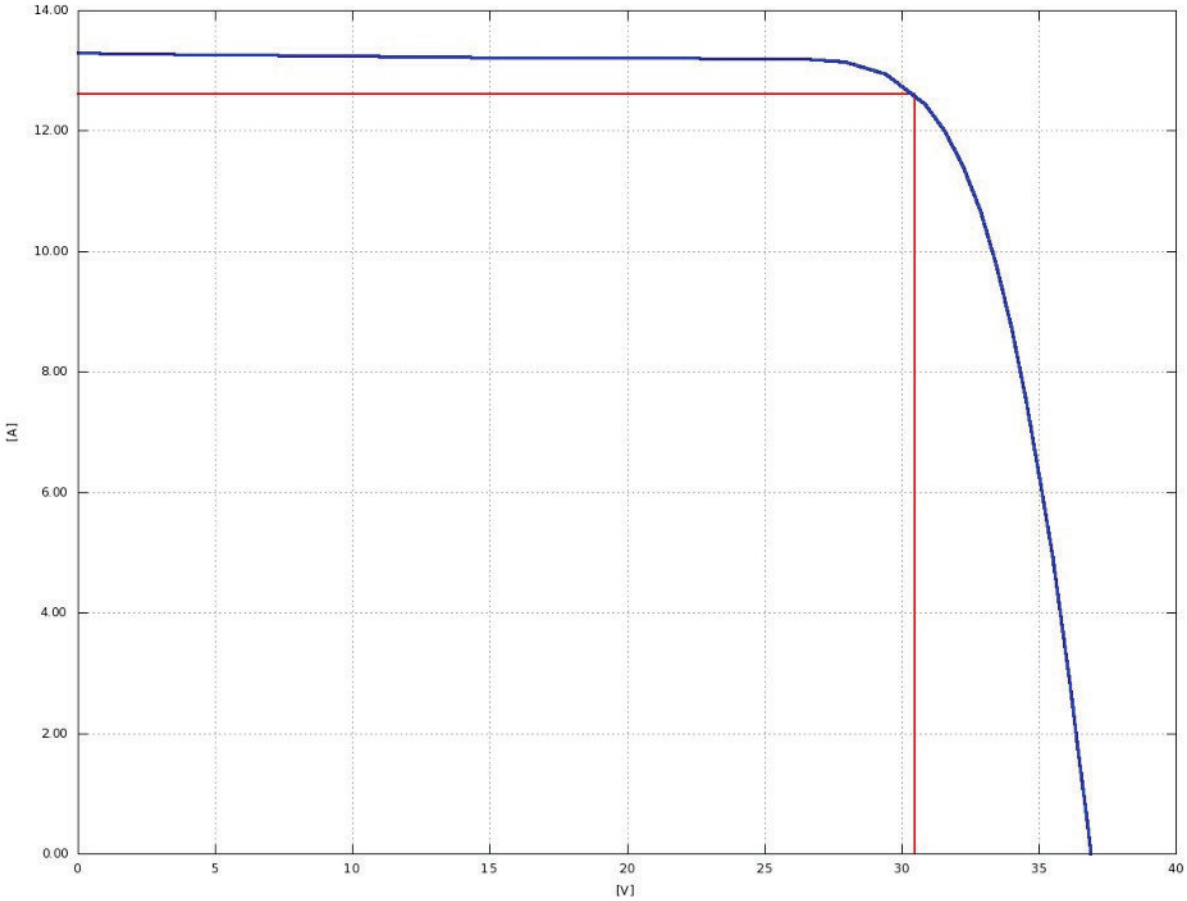
ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



INSULATION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/3
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106493AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	RH	Notes
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	36.0 %	
02.05.2023	DAH	500.0 Mohm	976.0 Mohm * m²	41.0 %	

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	36 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106493AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	41 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/3
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106493AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	Water temperature	Water conducibility
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	21.0 °C	850.0 ∝S
02.05.2023	DAH	500.0 Mohm	976.0 Mohm * m²	21.0 °C	925.0 ∝S

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106493AK	**Ending date**	14.03.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	21 °C
Water conducibility	850 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Starting date**	02.05.2023
Serial Number	¨C1BSM220627106493AK	**Ending date**	02.05.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	21 °C
Water conducibility	925 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

ELECTROLUMINESCENCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/3
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106493AK

Notes:	

RESULTS

Date	After	ITest [A]
14.03.2023	--	13.000
02.05.2023	DAH	13.000

ELECTROLUMINESCENCE

GENERAL INFORMATION

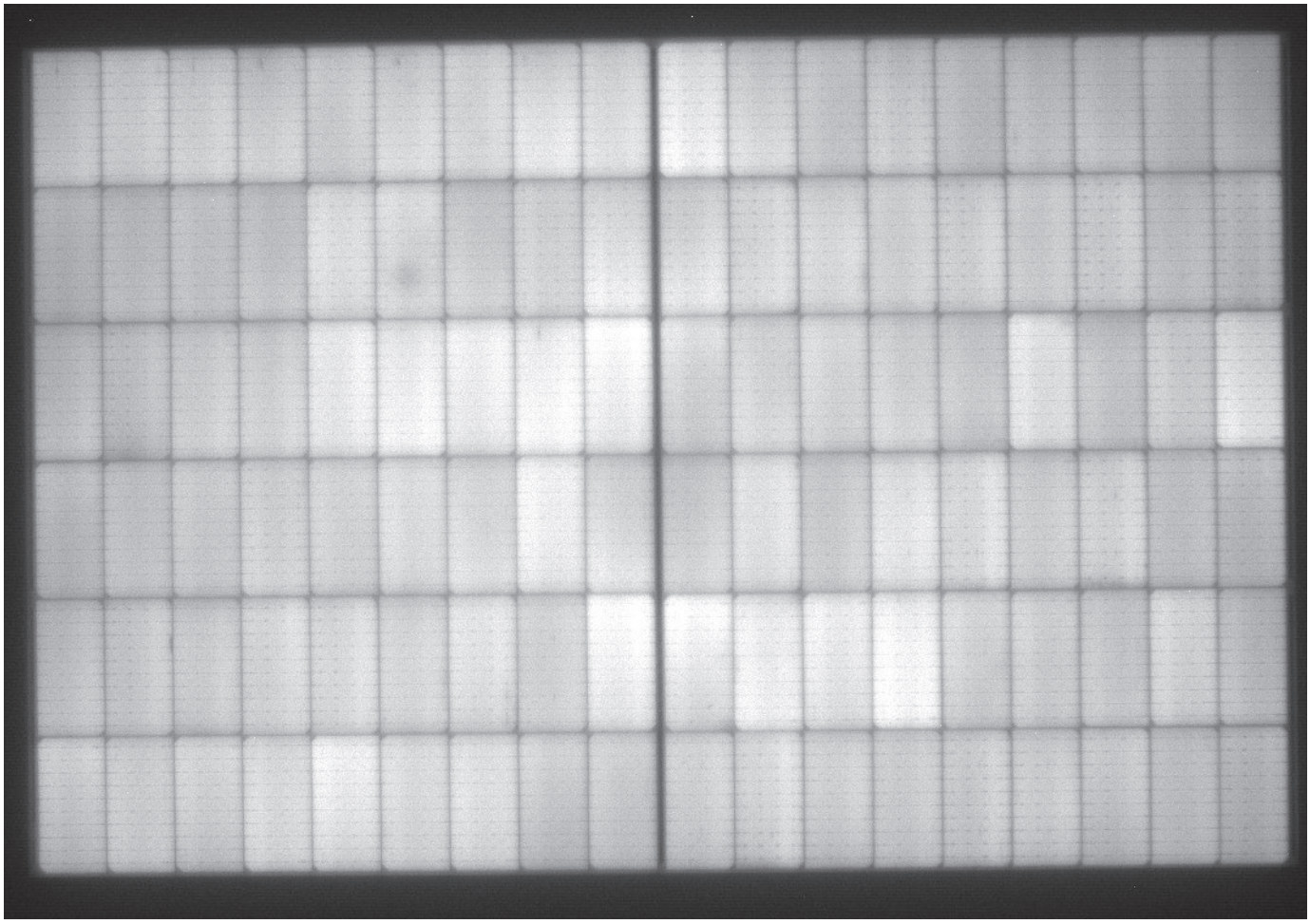
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106493AK	**Ending date**	14.03.2023

Result:	**N/A**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



ELECTROLUMINESCENCE

GENERAL INFORMATION

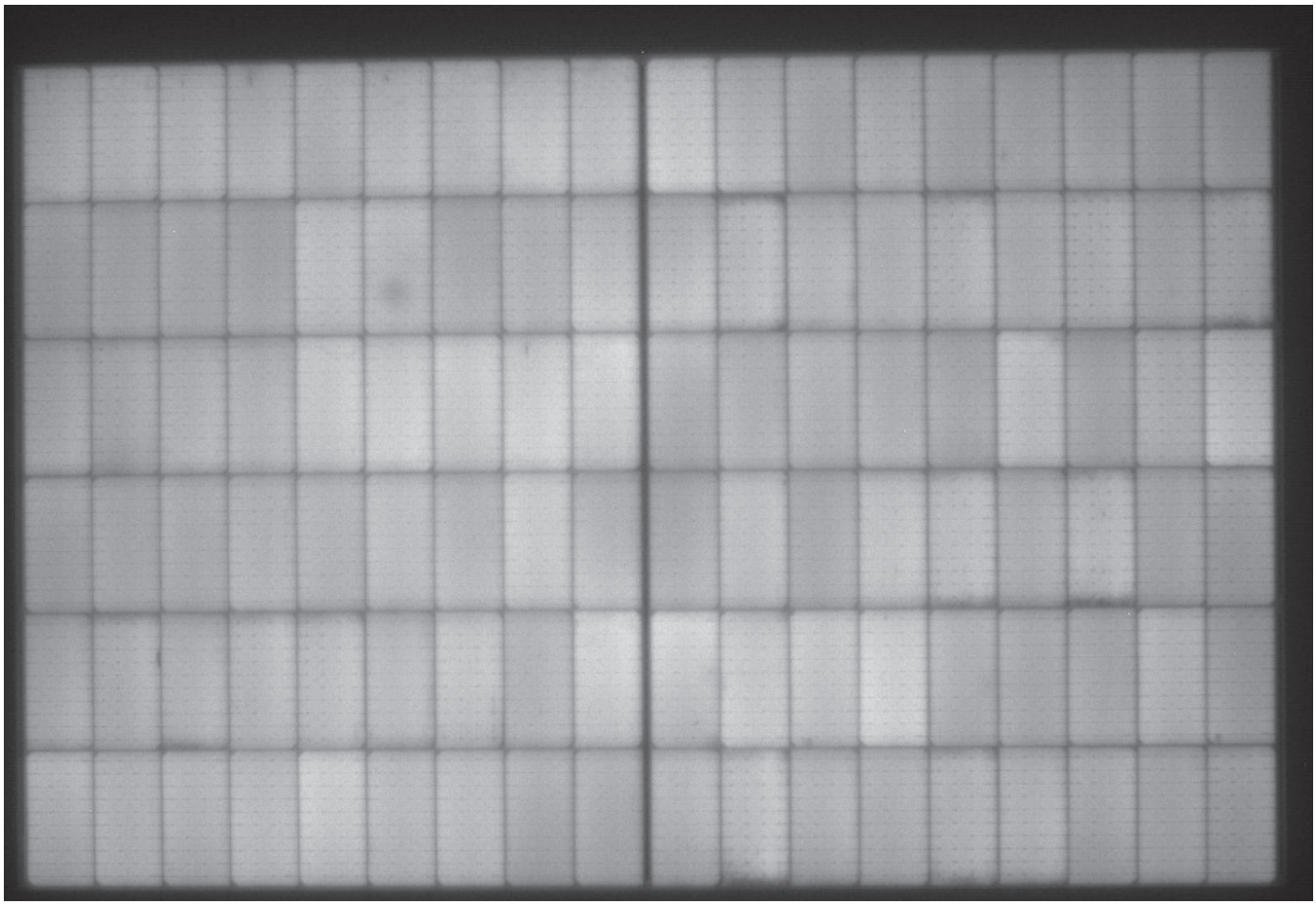
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/3
Model	BlackDiamond BSM-425	**Starting date**	02.05.2023
Serial Number	¨C1BSM220627106493AK	**Ending date**	02.05.2023

Result:	**PASSED**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



MODULE 23-042/A/4
TEST RESULTS

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module label	23-042/A/4
Type	BlackDiamond BSM-425
Serial number	¨C1BSM220627106689AK

REMARKS

DAMP HEAT TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106689AK	**Ending date**	02.05.2023

Result:	**N/A**	Notes: T = 85 °C; RH = 85%

Test Method:	IEC 61215-2:2016, cl. 4.13

UNCERTAINTY (coverage factor k=2)

RH measurement = ± 2.5%	T measurement = ± 1.0°C

REMARKS / ADDITIONAL INFORMATION

FOLLOWING MEASUREMENTS AND INSPECTIONS

Visual Inspection
02.05.2023

PASSED

Performance at STC
02.05.2023

Pm	390.38 W
ΔPm(prev)	-1.87 %

Insulation Test
02.05.2023

Limit	> 40 Mohm*m²
Measure	976 Mohm*m²

ACCESSIBILITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	03.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Relevation 1	
Position	
Resistance	no data

Relevation 2	
Position	
Resistance	no data

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

GROUND CONTINUITY TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	03.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test Current	37.5 A

Relevation 1	
Voltage	0.01 V
Resistance	0 Ω

Relevation 2	
Voltage	0.01 V
Resistance	0 Ω

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

REVERSE CURRENTE OVERLOAD TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	09.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	

TEST RESULTS

Test current	20.300 A
Temperature after one hour	42.0 °C
Temperature after two hours	46.0 °C

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 1.5%

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/4
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106689AK

Notes:	

RESULTS

Date	After	FRONT	CELLS	CONN	FRAME	REAR	JBOX	WIRES
14.03.2023	--	OK	OK	OK	OK	OK	OK	OK
02.05.2023	DAH	OK	OK	OK	OK	OK	OK	OK

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

REMARKS / ADDITIONAL INFORMATION

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106689AK		

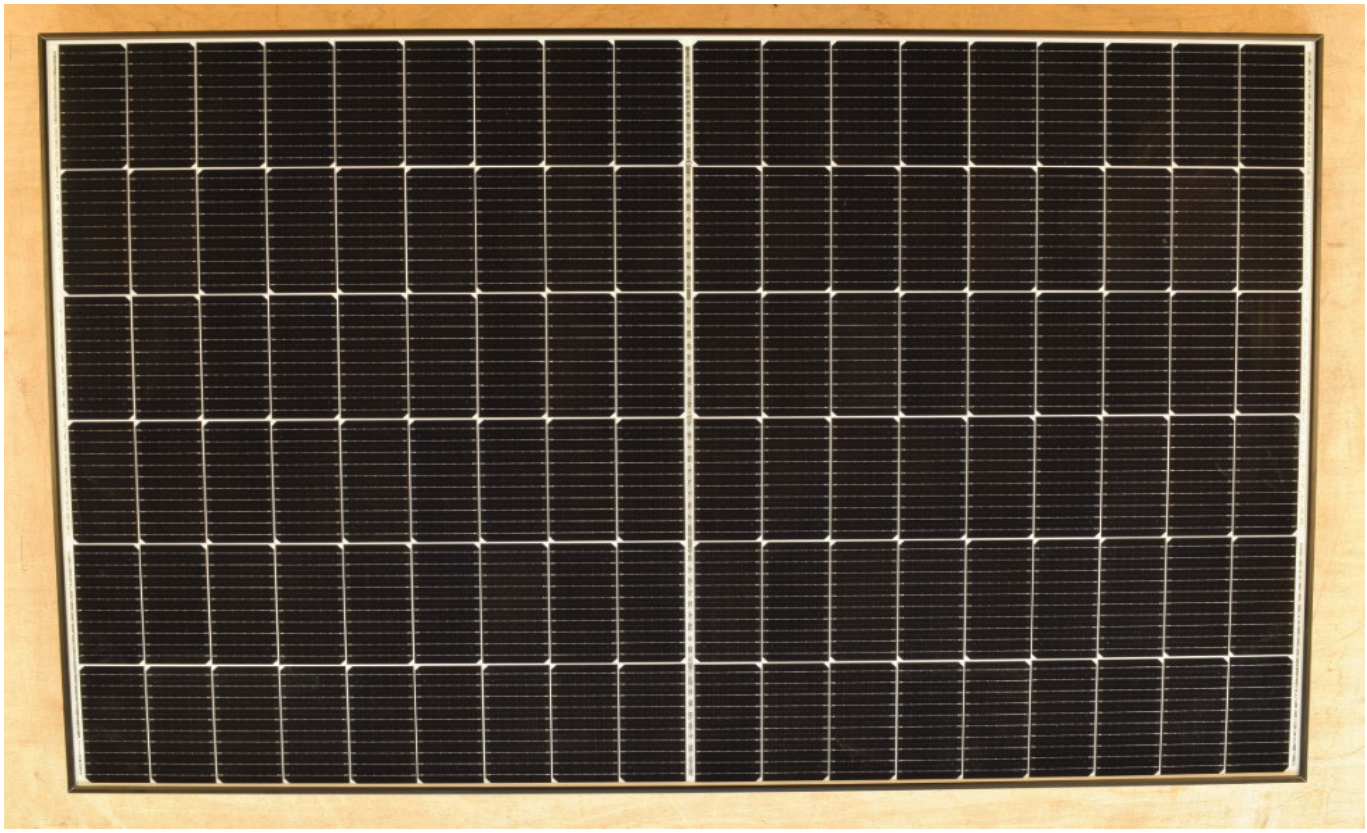
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Foreign particles	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Other	0-0	0	General view

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

TEST RESULTS

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
None	0-0	0	General view

REMARKS / ADDITIONAL INFORMATION

No additional visual defect after Damp Heat test (1000h)

VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106689AK		

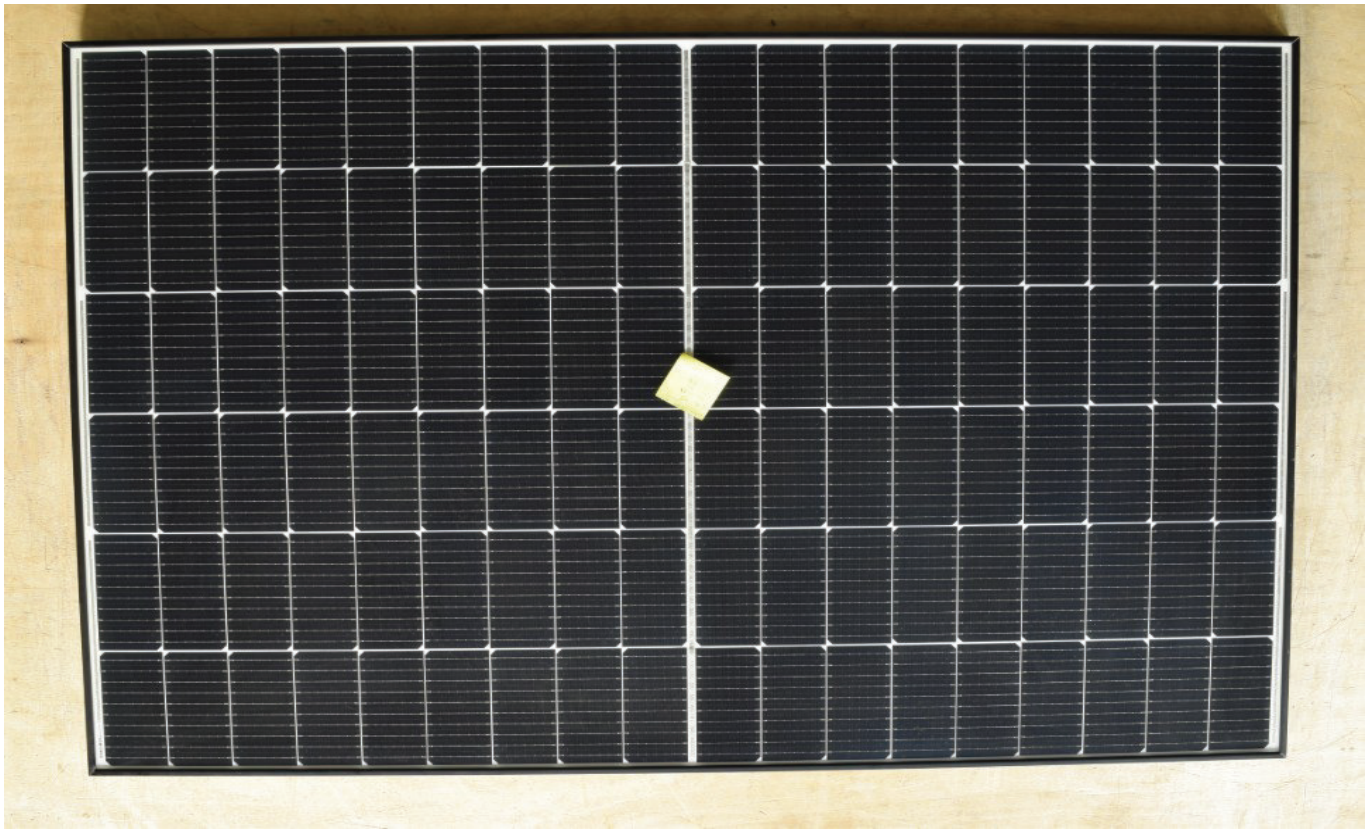
Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION FRONT

Defect	Pos. (X-Y)	Dimension	Description
Defect surfaces	0-0	0	General view



VISUAL INSPECTION

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.1

PAGE DETAIL

SECTION REAR

Defect	Pos. (X-Y)	Dimension	Description
Defect surfaces	0-0	0	General view

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/4
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106689AK

Test Method:	IEC 61215-2:2016, cl. 4.2

SUMMARY OF PERFORMANCES RESULTS

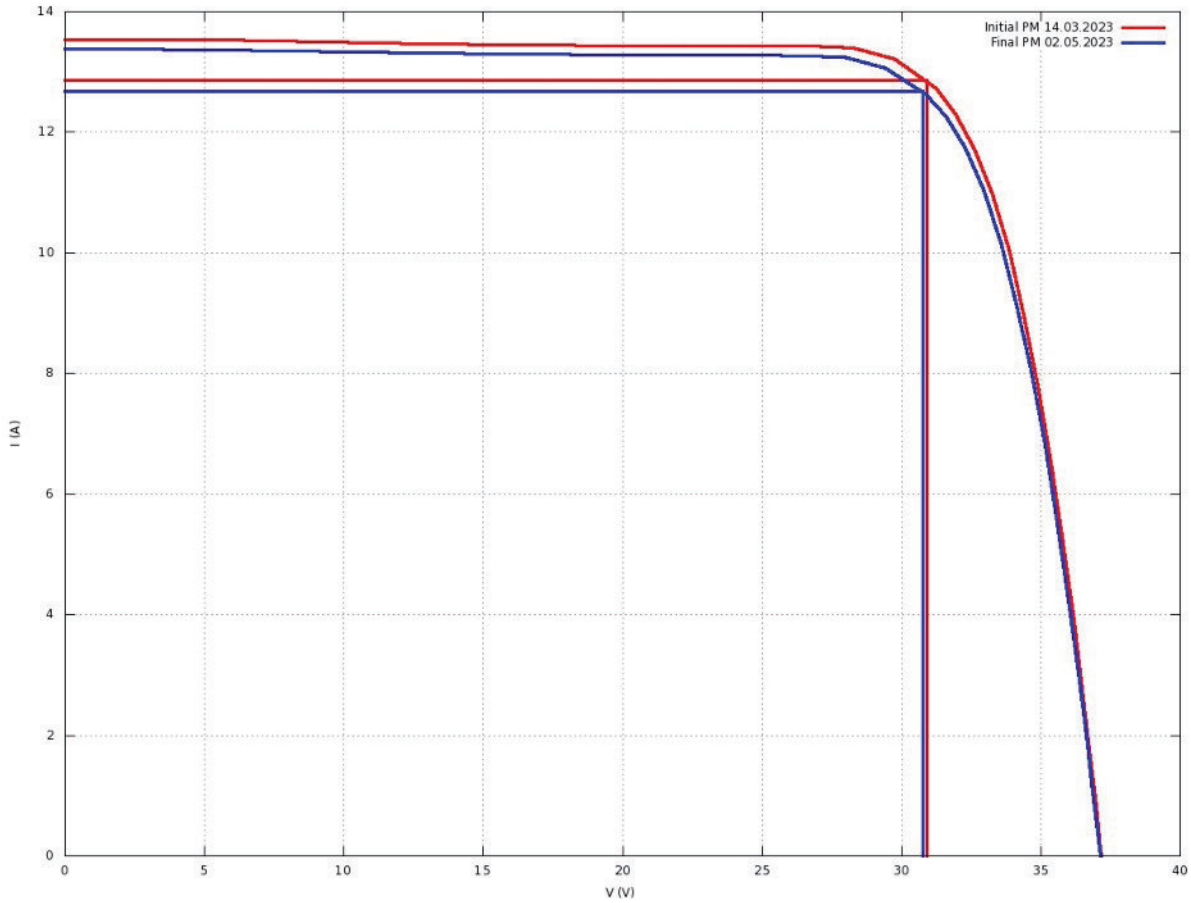
Date	After	Pm [W]	ΔPm [%]	Voc [V]	Isc [A]	Vm [V]	Im [A]	FF [%]
14.03.2023	--	397.82	N/A	37.17	13.537	30.93	12.862	79.1
02.05.2023	DAH	390.38	-1.87	37.14	13.380	30.78	12.683	78.6

ELECTRICAL PERFORMANCE SUMMARY

GENERAL INFORMATION	
Manufacturer	PVT Solar AG
Module Label	23-042/A/4
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106689AK

Test Method:	IEC 61215-2:2016, cl. 4.2

Comparison between first and last measurement



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	25.16 °C
Module Temperature	24.7 °C
Mean Irradiance	1002.3 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	397.82 W
Vmp	30.93 V
Imp	12.862 A
Voc	37.17 V
Isc	13.537 A
Fill factor	79.1 %
Module efficiency	20.4 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.74 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

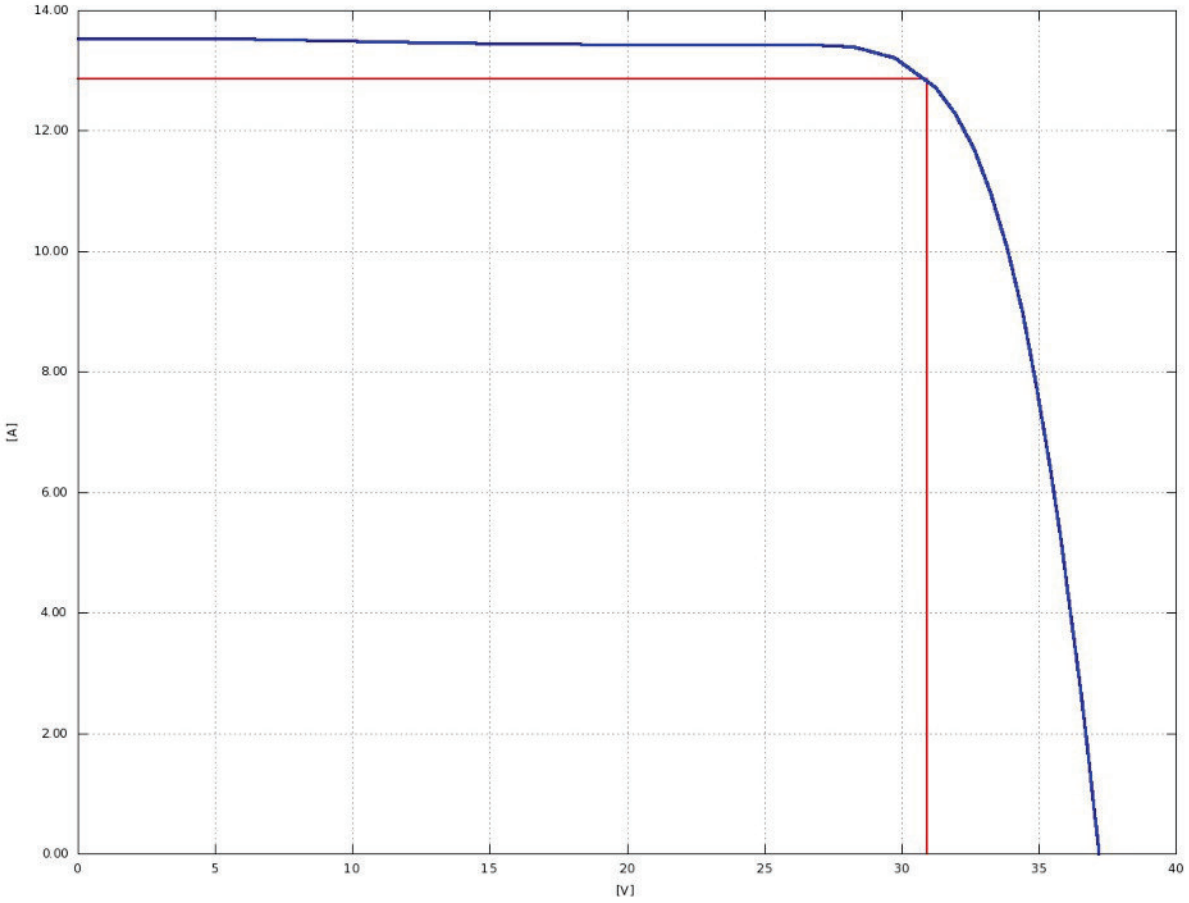
The measured power output is significantly lower than the rated value

ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**N/A**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6

TEST RESULTS

Test conditions	
Measurement mode	multiflash
Reference Cell	REF CELL 05 - V
Reference Cell Temperature	24.69 °C
Module Temperature	24.7 °C
Mean Irradiance	1002.7 W/m²
Simulator	PASAN 3B

Values corrected to 1000 W/m²	
Pmax	390.38 W
Vmp	30.78 V
Imp	12.683 A
Voc	37.14 V
Isc	13.380 A
Fill factor	78.6 %
Module efficiency	20.0 %

UNCERTAINTY (coverage factor k=2)

Pm = ± 2.7% (± 10.54 W)	Voc = ± 0.37% (± 0.14 V)	Isc = ± 2.6% (± 0.35 A)	No spectral correction

REMARKS / ADDITIONAL INFORMATION

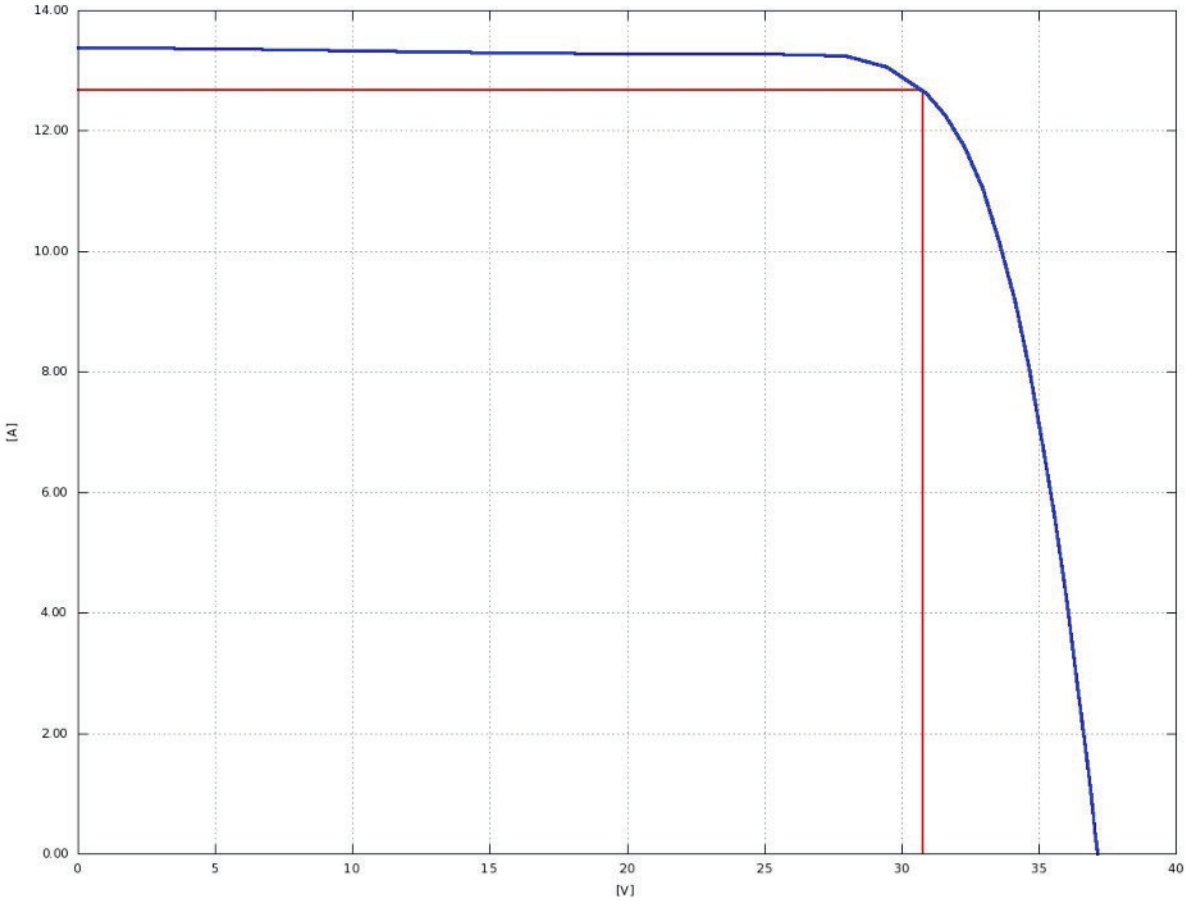
Power loss below -5%

ELECTRICAL PERFORMANCE MEASUREMENT AT STC

GENERAL INFORMATION			
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.2 & 4.6



INSULATION SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/4
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106689AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	RH	Notes
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	36.0 %	
02.05.2023	DAH	500.0 Mohm	976.0 Mohm * m²	41.0 %	

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	14.03.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	36 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

INSULATION TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Date of Measurement**	02.05.2023
Serial Number	¨C1BSM220627106689AK		

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.3

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
RH	41 %

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 4.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/4
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106689AK

Notes:	

RESULTS

Date	After	Insulation resistance	Area resistance	Water temperature	Water conducibility
14.03.2023	--	500.0 Mohm	976.0 Mohm * m²	21.0 °C	850.0 ∝S
02.05.2023	DAH	500.0 Mohm	976.0 Mohm * m²	21.0 °C	925.0 ∝S

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106689AK	**Ending date**	14.03.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	21 °C
Water conducibility	850 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

WET LEAKAGE TEST

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Starting date**	02.05.2023
Serial Number	¨C1BSM220627106689AK	**Ending date**	02.05.2023

Result:	**PASSED**	Notes:

Test Method:	IEC 61215-2:2016, cl. 4.15

TEST RESULTS

Insulation resistance	500 Mohm
Area resistance	976 Mohm * m²
Water temperature	21 °C
Water conducibility	925 ∝S

UNCERTAINTY (coverage factor k=2)

Total uncertainty = ± 5.3%

REMARKS / ADDITIONAL INFORMATION

ELECTROLUMINESCENCE SUMMARY

GENERAL INFORMATION

Manufacturer	PVT Solar AG
Module Label	23-042/A/4
Type	BlackDiamond BSM-425
Serial Number	¨C1BSM220627106689AK

Notes:	

RESULTS

Date	After	ITest [A]
14.03.2023	--	13.000
03.05.2023	DAH	13.000

ELECTROLUMINESCENCE

GENERAL INFORMATION

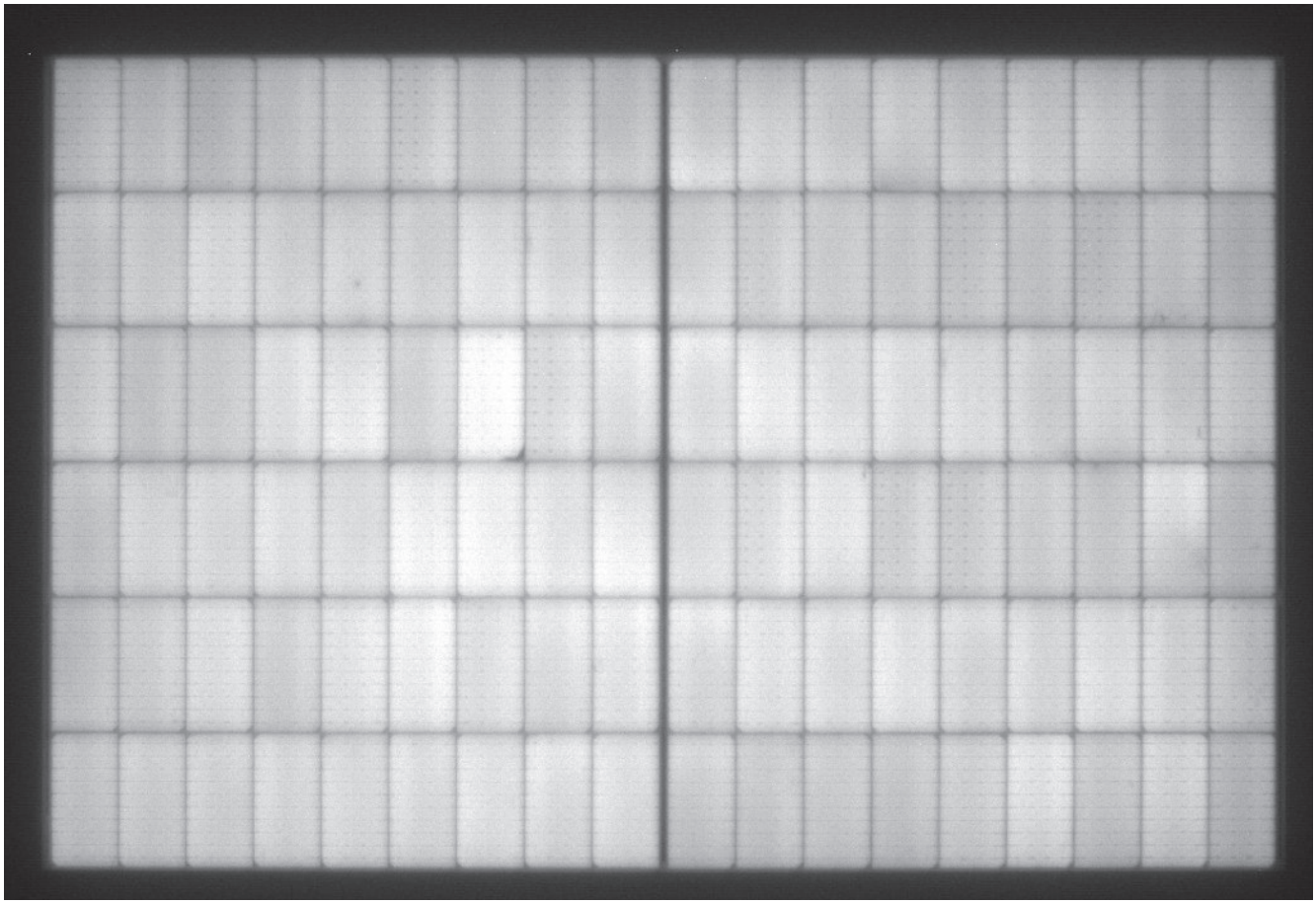
Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Starting date**	14.03.2023
Serial Number	¨C1BSM220627106689AK	**Ending date**	14.03.2023

Result:	**N/A**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION



ELECTROLUMINESCENCE

GENERAL INFORMATION

Manufacturer	PVT Solar AG	**Module Label**	23-042/A/4
Model	BlackDiamond BSM-425	**Starting date**	03.05.2023
Serial Number	¨C1BSM220627106689AK	**Ending date**	03.05.2023

Result:	**PASSED**	Notes: The test procedure is out of the scope of ISO 17025 accreditation

Test Method:	

UNCERTAINTY (coverage factor k=2)

REMARKS / ADDITIONAL INFORMATION