Prüfbericht-Nr.: *Test Report No.:*	**28106473 001**	**Auftrags-Nr.:** *Order No.:*	8735286	Seite 1 von 1+157 *Page 1 of 1+157*
Kunden-Referenz-Nr.: *Client Reference No.:*	8707658	**Auftragsdatum:** *Order date:*	10.03.2014	
Auftraggeber: *Client:*	OMRON Corporation, etc, come da indicazione sulla mail.			
Prüfgegenstand: *Test item:*	PV Inverter with PID recovery box			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	KP100L-OD-EU + PID recovery boxes			
Auftrags-Inhalt: *Order content:*	PID recovery			
Prüfgrundlage: *Test specification:*	See "APPLICABLE STANDARDS" chapter inside report			

Wareneingangsdatum: *Date of receipt:*	----
Prüfmuster-Nr.: *Test sample No.:*	N/A
Prüfzeitraum: *Testing period:*	19-03-2014 – 28-03-2014
Ort der Prüfung: *Place of testing:*	Belgium
Prüflaboratorium: *Testing laboratory:*	TUV Rheinland Italia
Prüfergebnis*: *Test result*:*	Pass

geprüft von / *tested by:*

12/02/2014	Nicolò Crosignani	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

kontrolliert von / *reviewed by:*

12/02/2014	Marco Piva / BFM	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test 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*

V04

TÜVRheinland®

REPORT ON THE PID EFFECT ON PHOTOVOLTAIC FIELD:

LOCATED IN :

BELGIUM

REQUESTED BY:

OMRON

CASE OF STUDY OF PID
(POTENTIAL INDUCED DEGRADATION EFFECT)
ON PHOTOVOLTAIC FIELD

CONTENTS

AIM

The aim of this report is to verify the ability of different PID recovery boxes (better described further), associated with different PV inverters (Omron and other brand selected by the market) to recovery PV modules operating on PV plants effected by PID (Potential Induced Degradation).

This is at the request of **OMRON**, hereinafter referred to as the 'client', acting on behalf of **TÜV Rheinland Italia SRL**, hereinafter referred to as TÜV Rheinland.

LOCATION OF THE PLANT UNDER INVESTIGATION

The test is executed in a PV plant located in Belgium.

SCOPE

The scope of this procedure is to verify the PID recovery speed of different PID recovery boxes combined with different PV inverter brands (Omron and other brands).

This procedure will act as a guide to correct measurement of the PID infected panels. The objective of this technical relation is to describe all the test and every solutions used to perform the PID recovery.

The test is structured as follows:

- PID recovery box type B with other brand photovoltaic inverter.
- PID recovery box type B with OMRON photovoltaic inverter.
- PID recovery box type A with other brand photovoltaic inverter.

APPLICABLE STANDARDS

Quality control shall be performed in accordance with the operating and technical procedures of TÜV Rheinland Italia S.r.l, in addition to those provided in the Quality Management System and taking into account the following applicable standards and regulations (only applicable parts):

- **EN 61829** Crystalline silicon photovoltaic (PV) array. On-site measurement of I-V characteristics.
- **EN 60891** Procedures for temperature and irradiance corrections to measured I-V characteristics of crystalline silicon photovoltaic devices.
- **EN 61277** Terrestrial photovoltaic (PV) power generating systems. General Requirements and Guidelines.
- **EN 60904-1:2007** Photovoltaic devices. Part 1: Measurement of the current-voltage characteristics of photovoltaic devices. (IEC 60904-1:2006).

EQUIPMENT USED

The following equipment was used to perform the various measurements:

Manufacturer	Model	Type	Equipment number
MBJ Solution GmbH	EL-quickcheck	EL-quickcheck *(EL measure)*	ND
PV Engineering	PVPM1000C40	I-V curve tracer	00614
PV Engineering	SOZ-03	Solar radiation sensor	S/N: 10704

Tab.1

INITIAL CONSIDERATIONS

1. CAUSES OF POTENTIAL INDUCED DEGRADATION (PID)

The PID effect occurs for three principal causes:

- Bias voltage applied
- Temperature
- Humidity (surface conductivity)

2. UNCERTAINTY RESULTING FROM THE MEASUREMENT METHOD AND THE MEASURING DEVICE ITSELF

The uncertainty on electrical and physical measures is:

Voltage: better than 1%

Current: better than 1%

Irradiance: better than 5% (0-1300W/m2 at 1.5AM -air mass-)

Temperature: better than 3,5% on determination of Junction's temperature; 0-100°C

The measures refer only the status of modules at the measures' time.

Use of STC's values reported[1].

STC's values are a useful instrument to compare performance of different modules in different moment.
In this report, the measures, registered during a stabile AM condition and corrected to STC, can be used to compare the same modules in different configurations.
The uncertainty for this method of measurement and extrapolation under standard conditions is +/-6% [2].

[1] For on-site measurement I-V curve.

[2] Expanded Uncertainty with coverage factor 95% (K=2)

3. DESCRIPTION OF THE WORK

The test is focused on demonstrate the ability of different PID recovery boxes associated with different PV inverters (better described further) to recovery PV modules operating on PV plants effected by PID (Potential Induced Degradation).

To perform this target the test is divided into three different parts, in the following is exposed the structure of the procedure.

Step by step procedure:

- Initial measurement of STC and EL on 18 modules affected by PID. PID affected PV modules come from another PV installation.
- Measurement of STC and EL done at ISO/IEC 17025 testing laboratory, are done before activity start and after 8 days of solar exposition on field.
- After STC and EL measurement, the modules are connected as indicated in Fig.1.
- Every day, some measurement are performed:

  - EL-test → with installer instrument *(see equipment used table for reference)*
  - Voc → with installer instrument *(see equipment used table for reference)*
  - I-V-curve (if global luminance > 600 W/m²) *(see equipment used table for reference)*

4. SET-UP PICTURES

Omron Inverter

KP100L-OD-EU

SN: 1179240 & 1179241

PV power plant (roof)

PV power plant (roof)

5. SET-UP SCHEME

Testing configuration:

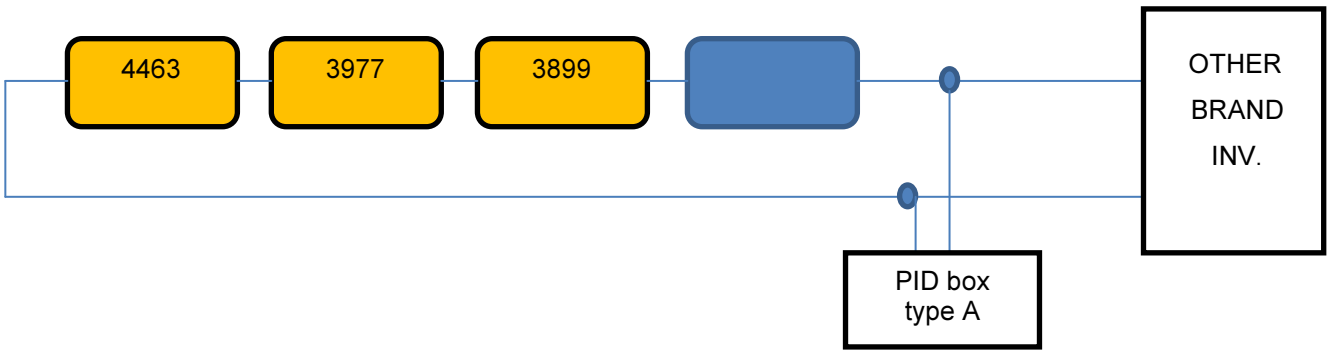
Figure below represents the setup of the test, every string is a different test's case. In general the trial scheme is thought in the following way:

Yellow modules are the ones affected by PID, connected on the negative pole of inverter because PID effect is more evident where there is a negative charges backlog for p-type panels like in this case. The PID recovery boxes are positioned between inverter and string (as declared by manufacturer) to operate in the best conditions; this configuration should be the best to observe the PID evolution.

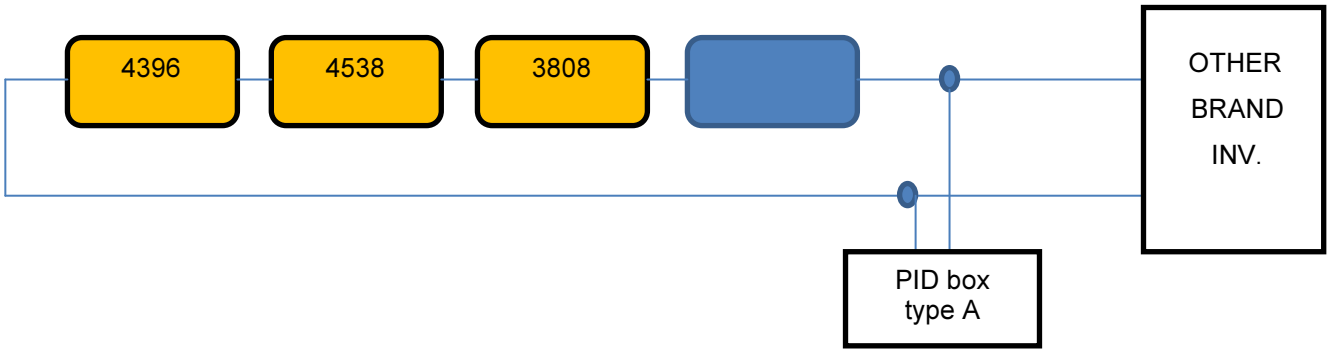
Panels selected for the test are random distributed on the field to not advantage any technology and to guarantee a more precise outcome.

Configuration 1

- Test 1

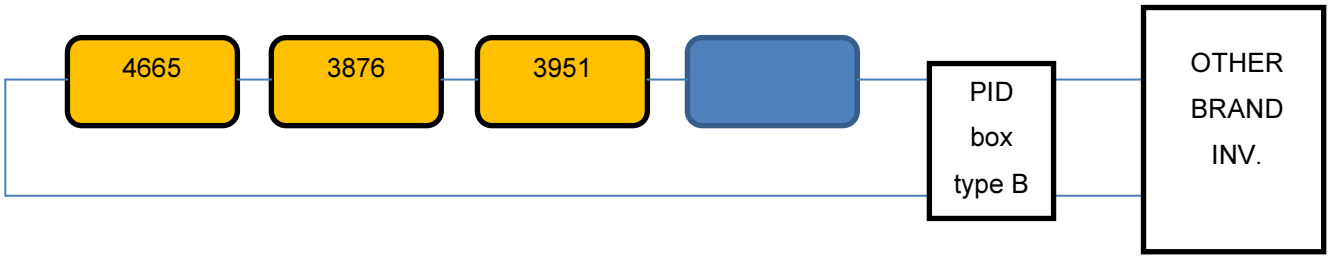


- Test 2

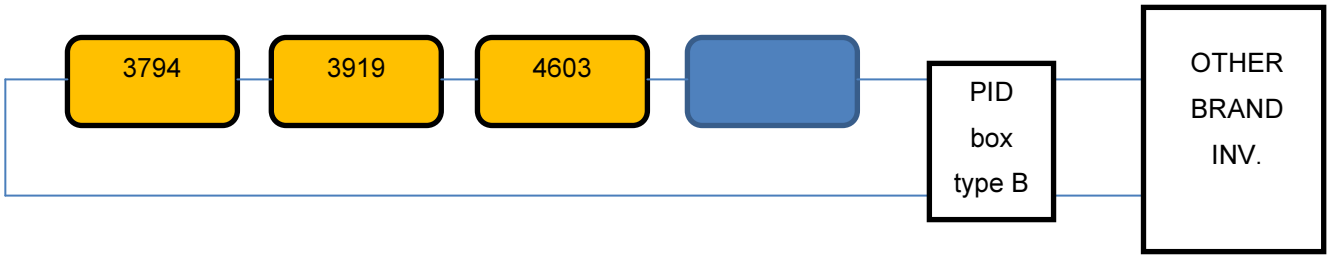


Configuration 2

- Test 1

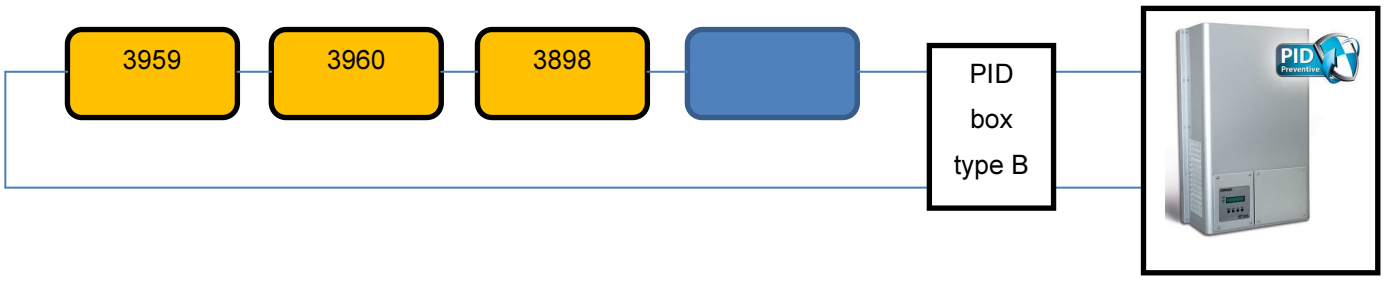


- Test 2



Configuration 3

- Test 1



- Test 2

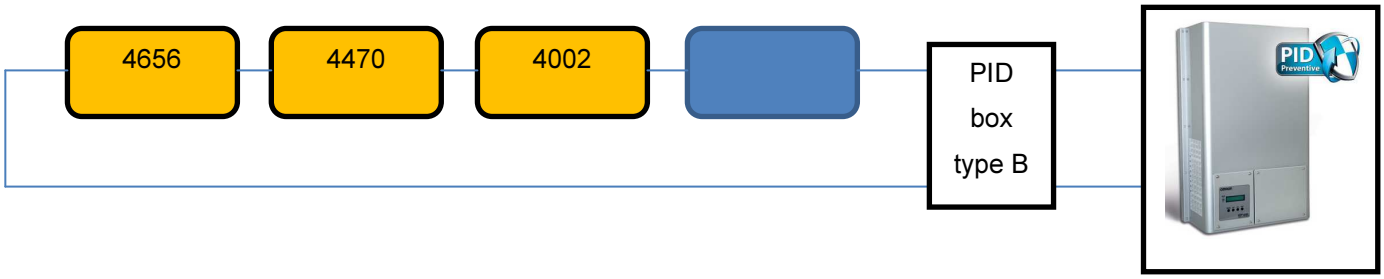


Fig.1

Panels stained with yellow in figure represent ones affected by PID effect.

The test is going to be executed with these 3 solutions:

- PID recovery box type A with other brand inverter connected to 3x16 panels effected by PID (configuration 1)
- PID recovery box type B with other brand inverter connected to 3x16 panels effected by PID (configuration 2)
- OMRON inverter with PID recovery box type B connected to 3x16 panels effected by PID (configuration 3)

The test will be performed twice (Test 1 and Test 2 as indicated in the figure above) so there will be used 6 inverters in total. The reason why the test is repeated twice is due to the fact that in Test 1 we use panels with an higher degradation level and in Test 2 panels with a lower degradation level. The evidence of this is reported in tables below:

Test 1

SN's	Pmax	Voc	String-Configuration
4463	21,4	10,22	Configuration 1
3951	15,1	8,17	Configuration 2
3959	30	13,32	Configuration 3
3977	37,4	15,81	Configuration 1
3876	35	14,61	Configuration 2
4470	44,6	16,59	Configuration 3
3899	50,7	18,45	Configuration 1
4665	47,6	17,74	Configuration 2
4656	55,3	20,19	Configuration 3

Test 2

SN's	Pmax	Voc	String-Configuration
3808	72,1	21,24	Configuration 1
3794	61,1	20,91	Configuration 2
4002	80,2	24,46	Configuration 3
4538	87	25,04	Configuration 1
3919	86,7	26,9	Configuration 2
3960	91	20,52	Configuration 3
4396	110,3	27,82	Configuration 1
4603	92	27,34	Configuration 2
3898	132	30	Configuration 3

Series of data of every day test are reported and in the end they are elaborated in graph to define poofs' trend.

First of all there is a selections of modules under test, above the list of identification numbers:

S/N: 1105M603S60100----

- 3898
- 3794
- 4538
- 4603
- 4002
- 4396
- 3808
- 3876
- 3899
- 3919
- 3951
- 3959
- 3960
- 3977
- 4463
- 4470
- 4665
- 4656

Placement of the Omron inverters with PID recovery box type B:

It's suggested to place the OMRON at nr. 17 and 20. They are both installed with a

Panels on these 2 inverters are:

- Inverter 17 (test 2): 4002; 3960; 3898
- Inverter 20 (test 1): 3959; 4470; 4656

Placement of the PID recovery box type A:

It's placed 2 PID recovery boxes type B on inverter nr 21 and 22.

Panels on these 2 inverters are:

- Inverter 21 (test 2): 3808; 4538; 4396
- Inverter 22 (test 1): 4463; 3977; 3899

Placement of the PID recovery box type B:

The PID recovery box type B is placed on inverter nr 7 and 8.

Panels on these 2 inverters are:

- Inverter 7 (test 2): 3794; 3919; 4603
- Inverter 8 (test 1): 3951; 3876; 4665

In the following plane it's possible to see the placement of panels on the roof:

Panels indicated **RED** on the next plan are on the most negative side of the string

Panels indicated **GREEN** on the next plan are on the second most negative side of the string

Panels indicated **BLUE** on the next plan are on the third most negative side of the string

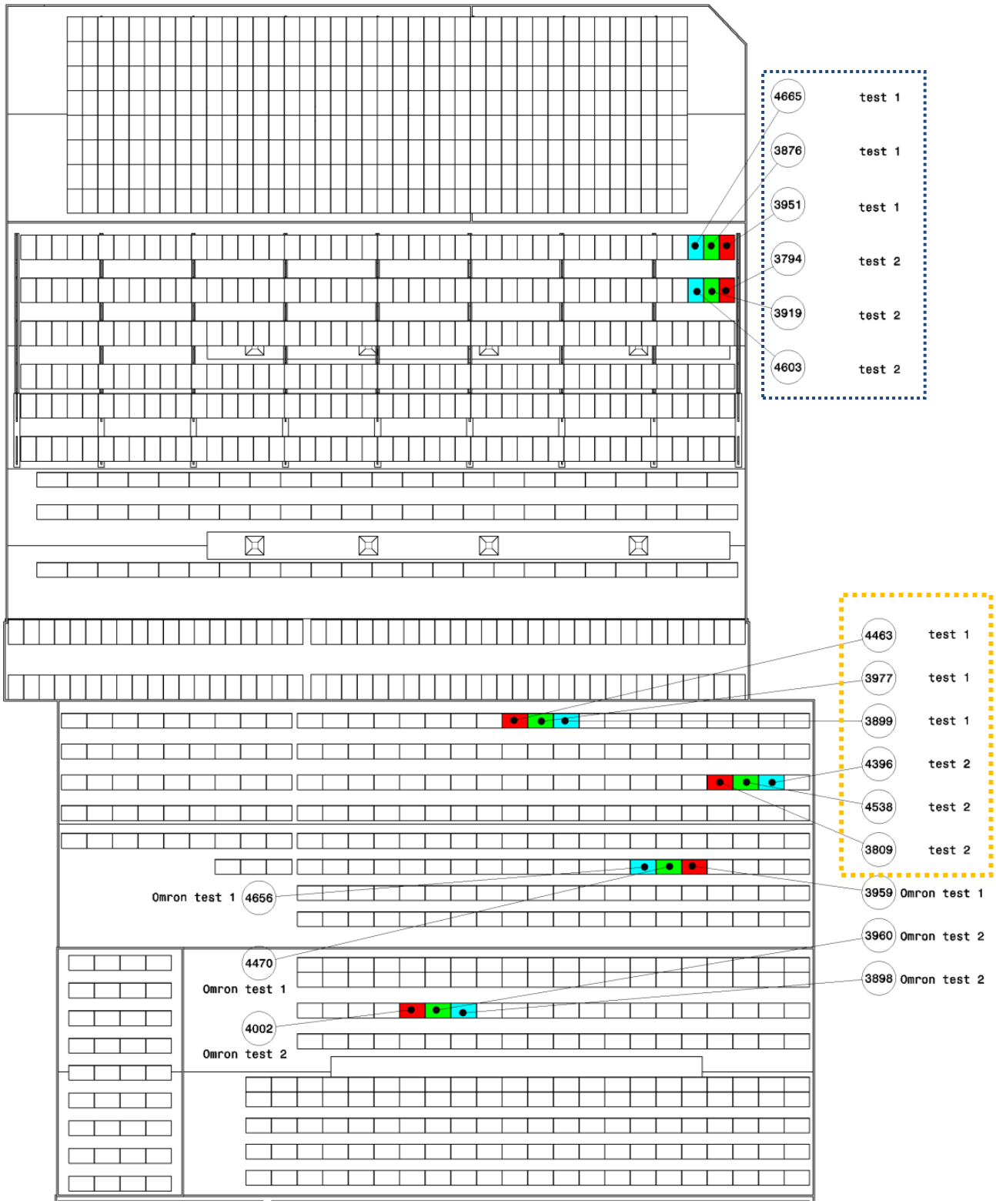


Fig.2

------- *Configuration with PID recovery box type A (Configuration N.1).*

------- *Configuration with PID recovery box type B (Configuration N.2 and N.3).*

6. DESCRIPTION OF THE MODULES UNDER TEST

The type of module used has the following characteristics, reported in label above, according to manufacturer datasheet and client requirement.

Module under test are indicated by a serial number written under bar code, as we can see in figure above, it is pointed out by a red circle. Serial number is codified with a fixed part and a variable part that is composed by last four digits, in the following is reported an example of S/N, the whole list is in next chapter:

S/N: 1105M603S601003919

I-V CURVE MEASUREMENT RESULTS

	Date									
	20/03/2014			21/03/2014			24/03/2014			
S/N	Pstc [W]	Deviation [%]	FF	Pstc [W]	Deviation [%]	FF	Pstc [W]	Deviation [%]	FF	Configuration
3898	139,33	-43,13	53,97	122,69	-49,92	49,35	153,45	-37,37	56,00	Config.3 Test2
3794	64,2	-73,80	41,20	53,62	-78,11	37,43	63,71	-74,00	39,67	Config.2 Test2
4538	90,64	-63,01	43,93	73,12	-70,16	39,51	86,55	-64,67	42,27	Config.1 Test2
4603	97,08	-60,38	44,35	78,73	-67,86	39,96	110,85	-54,76	45,90	Config.2 Test2
4002	85,25	-65,21	43,30	67,46	-72,47	38,10	106,38	-56,58	44,72	Config.3 Test2
4396	116,41	-52,48	48,88	94,22	-61,54	44,24	24,43	-90,03	36,82	Config.1 Test2
3808	80,98	-66,95	45,34	66,42	-72,89	40,47	78,88	-67,80	42,72	Config.1 Test2
3876	39,33	-83,95	43,51	37,34	-84,76	39,79	45,92	-81,26	41,87	Config.2 Test1
3899	56,85	-76,80	42,72	46,04	-81,21	38,19	63,52	-74,07	41,46	Config.1 Test1
3919	98,09	-59,96	42,69	89,02	-63,67	39,39	130,11	-46,90	47,93	Config.2 Test2
3951	17,32	-92,93	56,53	14,73	-93,99	49,76	19,63	-91,99	51,77	Config.2 Test1
3959	35,56	-85,48	44,13	24,41	-90,04	37,72	53,24	-78,27	41,75	Config.3 Test1
3960	97,39	-60,25	54,65	85,58	-65,07	51,31	104,45	-57,37	53,78	Config.3 Test2
3977	42,70	-82,57	42,24	32,08	-86,90	36,15	50,43	-79,42	39,87	Config.1 Test1
4463	24,91	-89,83	50,37	17,71	-92,77	40,71	19,55	-92,02	38,88	Config.1 Test1
4470	49,91	-79,63	42,87	37,54	-84,68	36,88	68,97	-71,85	45,32	Config.3 Test1
4665	51,66	-78,91	40,37	40,18	-83,60	35,85	61,46	-74,91	40,46	Config.2 Test1
4656	64,19	-73,80	41,96	48,43	-80,23	36,40	95,40	-61,06	44,55	Config.3 Test1

	Date									
	25/03/2014			26/03/2014			27/03/2014			
S/N	Pstc [W]	Deviation [%]	FF	Pstc [W]	Deviation [%]	FF	Pstc [W]	Deviation [%]	FF	Configuration
3898	158,59	-35,27	55,85	146,96	-40,02	55,20	151,90	-38,00	55,24	Config.3 Test2
3794	62,88	-74,33	38,91	61,63	-74,84	38,70	59,88	-75,56	38,19	Config.2 Test2
4538	91,27	-62,74	43,90	89,68	-63,39	43,30	86,43	-64,72	42,70	Config.1 Test2
4603	100,54	-58,96	43,64	95,13	-61,17	42,85	96,14	-60,76	42,6	Config.2 Test2
4002	103,50	-57,76	43,56	94,23	-61,54	42,32	95,23	-61,13	42,30	Config.3 Test2
4396	120,31	-50,89	49,60	113,19	-53,80	48,08	111	-54,69	47,91	Config.1 Test2
3808	91,18	-62,78	46,64	90,22	-63,18	45,71	85,99	-64,9	44,90	Config.1 Test2
3876	43,39	-82,29	40,00	43,36	-82,30	39,21	45,21	-81,55	39,50	Config.2 Test1
3899	59,96	-75,53	41,37	62,57	-74,46	41,39	58,37	-76,18	40,34	Config.1 Test1
3919	118,90	-51,47	45,24	112,16	-54,22	44,83	116,48	-52,46	45,12	Config.2 Test2
3951	19,67	-91,97	50,97	17,18	-92,99	47,73	19,11	-92,20	43,54	Config.2 Test1
3959	45,84	-81,29	39,21	47,96	-80,42	38,33	49,76	-79,69	37,63	Config.3 Test1
3960	101,62	-58,52	51,85	94,49	-61,43	50,41	99,47	-59,40	51,37	Config.3 Test2
3977	45,22	-81,54	38,95	49,01	-80,00	39,52	44,74	-81,74	38,37	Config.1 Test1
4463	30,60	-87,51	44,63	26,09	-89,35	42,19	28,11	-88,52	42,84	Config.1 Test1
4470	64,06	-73,85	42,76	63,85	-73,94	43,07	69,09	-71,80	43,56	Config.3 Test1
4665	55,78	-77,23	38,39	53,62	-78,11	37,44	55,38	-77,40	37,22	Config.2 Test1
4656	83,49	-65,92	41,02	85,28	-65,19	41,74	98,47	-59,81	43,81	Config.3 Test1

The two tables above report values of power, degradation and fill factor day by day, of panels under test. In Annex1 it's possible to see the I-V curves for every configuration. Graphs of the Annex1 are relative to data measured on filed and I-V curves are also relative to on field measurement, these values are a little bit different from those obtained in qualified testing agency. We decided to report both cases to show the difference connected with external factors that preclude the possibility to appreciate recovery of on field panels.

FINAL RESULTS

Here below are shown the characterization of the PV models at STC conditions performed on accredited testing laboratory.

OMRON: Configuration 3

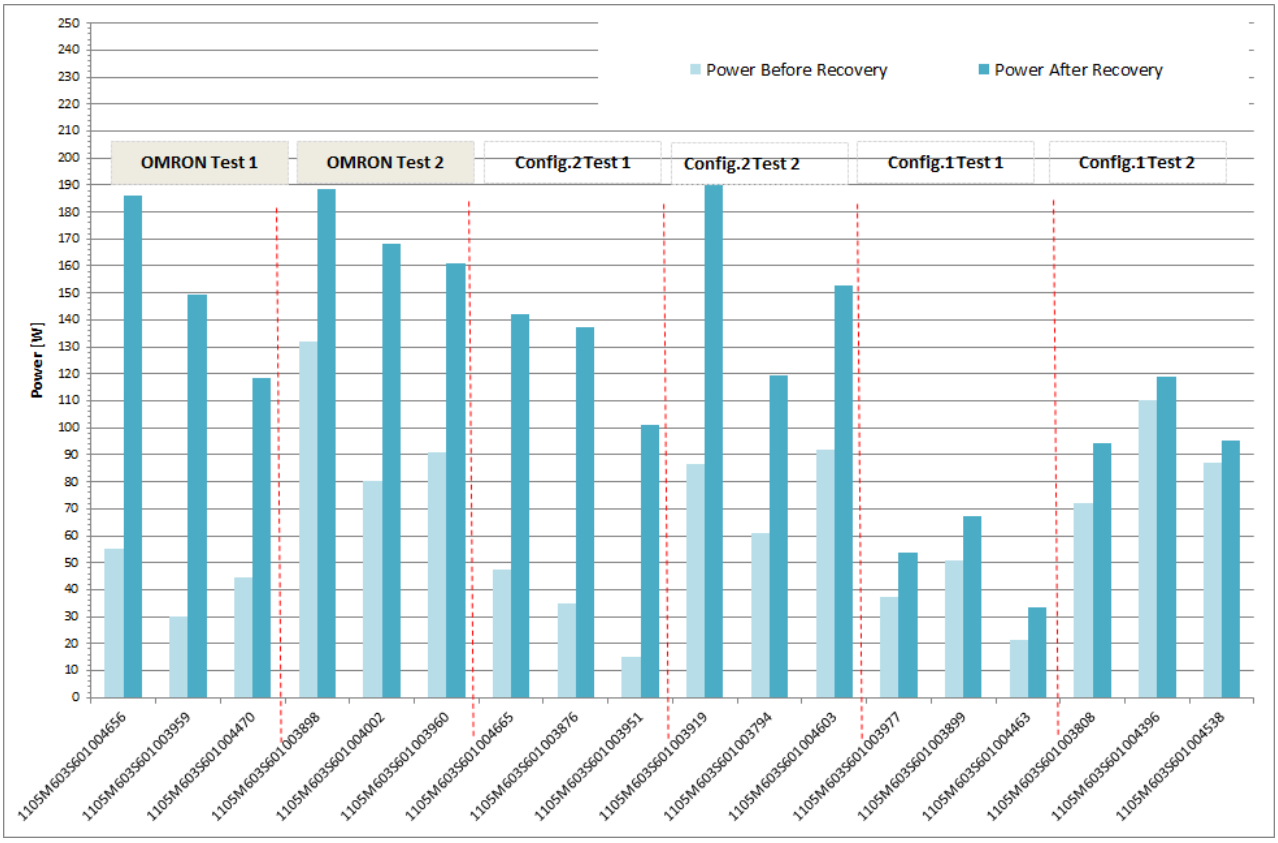
Module S/N	Measured values Before recovery			Deviation	Measured values After recovery			Deviation	Power Recovery [%]	Configuration
1105M603S601004470	Pmax	44,6	W	-81,8%	118,6	W		-51,6%	30,2%	Config.3 Test 1
	Vmp	9,4	V	-69,4%	17,09	V		-44,3%		
	Imp	4,75	A	-40,6%	6,94	A		-13,1%		
	Voc	16,59	V	-56,1%	28,11	V		-25,6%		
	Icc	8,38	A	-1,64%	8,55	A		0,35%		
	ff	0,32			0,49					
	n	2,7%			7,3%					
1105M603S601004656	Pmax	55,3	W	-77,4%	186,3	W		-24,0%	53,5%	Config.3 Test 1
	Vmp	11,32	V	-63,1%	25,13	V		-18,1%		
	Imp	4,88	A	-38,9%	7,41	A		-7,3%		
	Voc	20,19	V	-46,6%	34,42	V		-8,9%		
	Icc	8,38	A	-1,64%	8,51	A		-0,12%		
	ff	0,33			0,64					
	n	3,4%			11,4%					
1105M603S601003959	Pmax	30	W	-87,8%	149,2	W		-39,1%	48,7%	Config.3 Test 1
	Vmp	6,76	V	-78,0%	23,97	V		-21,9%		
	Imp	4,43	A	-44,6%	6,22	A		-22,2%		
	Voc	13,32	V	-64,7%	34,9	V		-7,6%		
	Icc	7,87	A	-7,63%	8,58	A		0,70%		
	ff	0,29			0,50					
	n	1,8%			9,1%					
1105M603S601003898	Pmax	132	W	-46,1%	188,5	W		-23,1%	23,1%	Config.3 Test 2
	Vmp	20,33	V	-33,7%	25,13	V		-18,1%		
	Imp	6,49	A	-18,8%	7,5	A		-6,1%		
	Voc	30	V	-20,6%	34,05	V		-9,9%		
	Icc	8,6	A	0,94%	8,58	A		0,70%		
	ff	0,51			0,65					
	n	8,1%			11,5%					
1105M603S601004002	Pmax	80,2	W	-67,3%	168	W		-31,4%	35,8%	Config.3 Test 2
	Vmp	14,02	V	-54,3%	25,49	V		-16,9%		
	Imp	5,72	A	-28,4%	6,59	A		-17,5%		
	Voc	24,46	V	-35,3%	34,95	V		-7,5%		
	Icc	8,43	A	-1,06%	8,43	A		-1,06%		
	ff	0,39			0,57					
	n	4,9%			10,3%					
1105M603S601003960	Pmax	91	W	-62,9%	161,2	W		-34,2%	28,7%	Config.3 Test 2
	Vmp	12,62	V	-58,9%	23,88	V		-22,2%		
	Imp	7,21	A	-9,8%	6,75	A		-15,5%		
	Voc	20,52	V	-45,7%	33,65	V		-10,9%		
	Icc	8,21	A	-3,64%	8,33	A		-2,23%		
	ff	0,54			0,58					
	n	5,6%			9,9%					

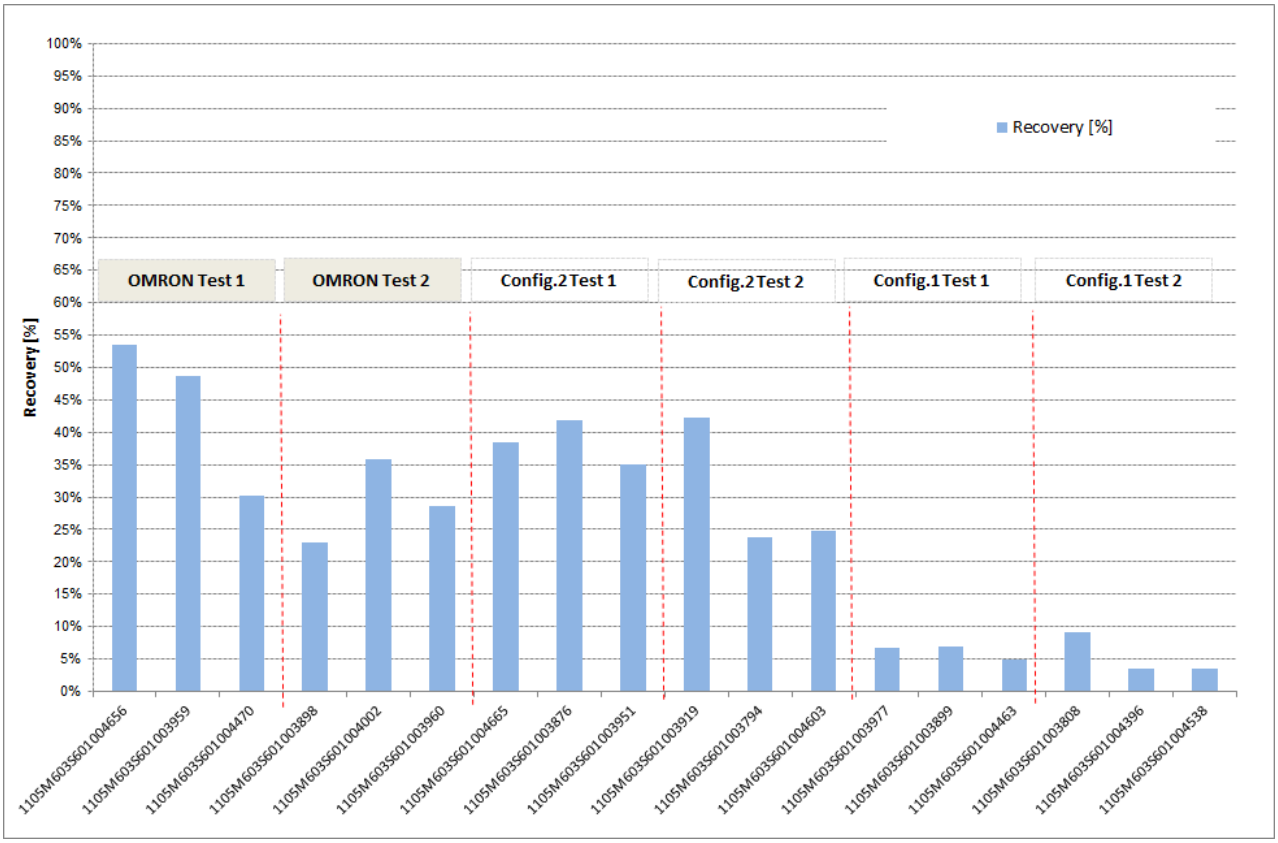
PID recovery box type B: Configuration 2

Module S/N	Measured values Before recovery			Deviation	Measured values After recovery		Deviation	Power Recovery [%]	Configuration
1105M603S601003876	Pmax	35	W	-85,7%	137,5	W	-43,9%	41,8%	Config.2 Test 1
	Vmp	7,44	V	-75,7%	20,29	V	-33,9%		
	Imp	4,71	A	-41,1%	6,78	A	-15,1%		
	Voc	14,61	V	-61,3%	30,73	V	-18,7%		
	Icc	8,09	A	-5,05%	8,47	A	-0,59%		
	ff	0,30			0,53				
	n	2,1%			8,4%				
1105M603S601003951	Pmax	15,1	W	-93,8%	101,1	W	-58,7%	35,1%	Config.2 Test 1
	Vmp	4,14	V	-86,5%	17,5	V	-43,0%		
	Imp	3,66	A	-54,2%	5,78	A	-27,7%		
	Voc	8,17	V	-78,4%	27,16	V	-28,1%		
	Icc	7,07	A	-17,02%	8,48	A	-0,47%		
	ff	0,26			0,44				
	n	0,9%			6,2%				
1105M603S601004665	Pmax	47,6	W	-80,6%	142,0	W	-42,0%	38,5%	Config.2 Test 1
	Vmp	9,84	V	-67,9%	23,1	V	-24,7%		
	Imp	4,84	A	-39,4%	6,15	A	-23,0%		
	Voc	17,74	V	-53,0%	33,19	V	-12,1%		
	Icc	8,56	A	0,47%	8,54	A	0,23%		
	ff	0,31			0,50				
	n	2,9%			8,7%				
1105M603S601003794	Pmax	61,1	W	-75,1%	119,5	W	-51,2%	23,8%	Config.2 Test 2
	Vmp	11,29	V	-63,2%	19,1	V	-37,7%		
	Imp	5,41	A	-32,3%	6,25	A	-21,8%		
	Voc	20,91	V	-44,7%	29,79	V	-21,1%		
	Icc	8,69	A	2,00%	8,67	A	1,76%		
	ff	0,34			0,46				
	n	3,7%			7,3%				
1105M603S601004603	Pmax	92	W	-62,4%	152,8	W	-37,6%	24,8%	Config.2 Test 2
	Vmp	15,5	V	-49,5%	23,91	V	-22,1%		
	Imp	5,94	A	-25,7%	6,39	A	-20,0%		
	Voc	26,34	V	-30,3%	34,2	V	-9,5%		
	Icc	8,43	A	-1,06%	8,45	A	-0,82%		
	ff	0,41			0,53				
	n	5,6%			9,4%				
1105M603S601003919	Pmax	86,7	W	-64,6%	190,3	W	-22,3%	42,3%	Config.2 Test 2
	Vmp	15,91	V	-48,1%	26,37	V	-14,0%		
	Imp	5,45	A	-31,8%	7,21	A	-9,8%		
	Voc	26,9	V	-28,8%	35,66	V	-5,6%		
	Icc	8,47	A	-0,59%	8,59	A	0,82%		
	ff	0,38			0,62				
	n	5,3%			11,6%				

PID recovery box type A: Configuration 1

Module S/N	Measured values Before recovery			Deviation	Measured values After recovery			Deviation	Power Recovery [%]	Configuration
1105M603S601003977	Pmax	37,4	W	-84,7%	53,95	W		-78,0%	6,8%	Config.1 Test 1
	Vmp	8,59	V	-72,0%	11,46	V		-62,6%		
	Imp	4,35	A	-45,6%	4,71	A		-41,1%		
	Voc	15,81	V	-58,2%	19,66	V		-48,0%		
	Icc	7,97	A	-6,46%	8,33	A		-2,23%		
	ff	0,30			0,33					
	n	2,3%			3,3%					
1105M603S601003899	Pmax	50,7	W	-79,3%	67,47	W		-72,5%	6,8%	Config.1 Test 1
	Vmp	10,7	V	-65,1%	13,07	V		-57,4%		
	Imp	4,74	A	-40,7%	5,16	A		-35,4%		
	Voc	18,45	V	-51,2%	21,44	V		-43,3%		
	Icc	8,27	A	-2,93%	8,41	A		-1,29%		
	ff	0,33			0,37					
	n	3,1%			4,1%					
1105M603S601004463	Pmax	21,4	W	-91,3%	33,4	W		-86,4%	4,9%	Config.1 Test 1
	Vmp	5,24	V	-82,9%	7,46	V		-75,7%		
	Imp	4,09	A	-48,8%	4,47	A		-44,1%		
	Voc	10,22	V	-72,9%	13,43	V		-64,5%		
	Icc	7,74	A	-9,15%	8,15	A		-4,34%		
	ff	0,27			0,31					
	n	1,3%			2,0%					
1105M603S601004396	Pmax	110,3	W	-55,0%	118,8	W		-51,5%	3,5%	Config.1 Test 2
	Vmp	17,92	V	-41,6%	18,34	V		-40,2%		
	Imp	6,15	A	-23,0%	6,48	A		-18,9%		
	Voc	27,82	V	-26,4%	28,8	V		-23,8%		
	Icc	8,5	A	-0,23%	8,43	A		-1,06%		
	ff	0,47			0,49					
	n	6,8%			7,3%					
1105M603S601004538	Pmax	87	W	-64,5%	95,37	W		-61,1%	3,4%	Config.1 Test 2
	Vmp	14,93	V	-51,3%	16,31	V		-46,8%		
	Imp	5,83	A	-27,0%	5,85	A		-26,8%		
	Voc	25,04	V	-33,7%	26,44	V		-30,0%		
	Icc	8,54	A	0,23%	8,59	A		0,82%		
	ff	0,41			0,42					
	n	5,3%			5,8%					
1105M603S601003808	Pmax	72,1	W	-70,6%	94,21	W		-61,5%	9,0%	Config.1 Test 2
	Vmp	12,78	V	-58,3%	15,1	V		-50,8%		
	Imp	5,64	A	-29,4%	6,24	A		-21,9%		
	Voc	21,24	V	-43,8%	24,64	V		-34,8%		
	Icc	8,42	A	-1,17%	8,37	A		-1,76%		
	ff	0,40			0,46					
	n	4,4%			5,8%					


Power Before Recovery
Power After Recovery
OMRON Test 1
OMRON Test 2
Config.2 Test 1
Config.2 Test 2
Config.1 Test 1
Config.1 Test 2
Power [W]
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1105M603560100465 6
1105M603560100395 9
1105M603560100447 0
1105M603560100389 8
1105M603560100400 2
1105M603560100396 0
1105M603560100466 5
1105M603560100387 6
1105M603560100395 1
1105M603560100391 9
1105M603560100379 4
1105M603560100460 3
1105M603560100397 7
1105M603560100389 9
1105M603560100446 3
1105M603560100380 8
1105M603560100439 6
1105M603560100453 8


Recovery [%]
OMRON Test 1
OMRON Test 2
Config.2 Test 1
Config.2 Test 2
Config.1 Test 1
Config.1 Test 2
Recovery [%]
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
1105M603560100465 6
1105M603560100395 9
1105M603560100447 0
1105M603560100389 8
1105M603560100400 2
1105M603560100396 0
1105M603560100466 5
1105M603560100387 6
1105M603560100395 1
1105M603560100391 9
1105M603560100379 4
1105M603560100460 3
1105M603560100397 7
1105M603560100389 9
1105M603560100446 3
1105M603560100380 8
1105M603560100439 6
1105M603560100453 8

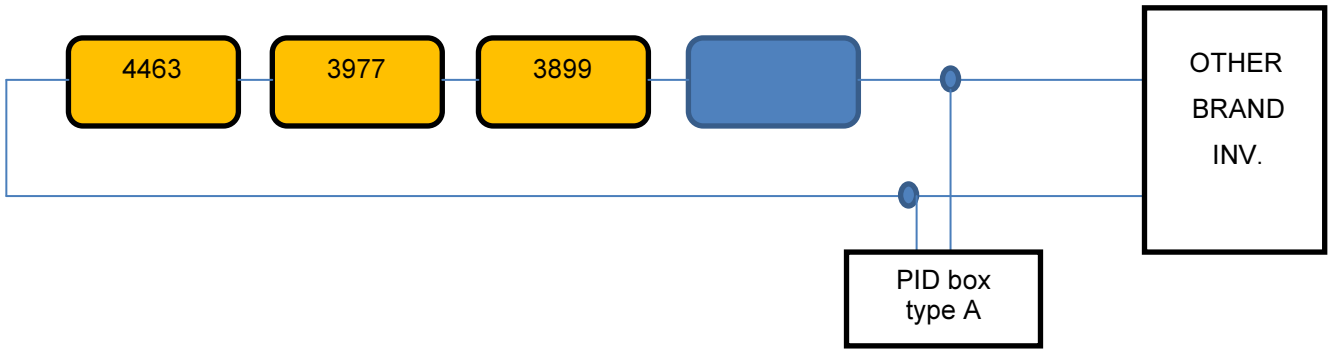
OVERALL SUMMARY OF MEASUREMENTS

1.STC PERFORMED AT QUALIFIED TESTING AGENCY

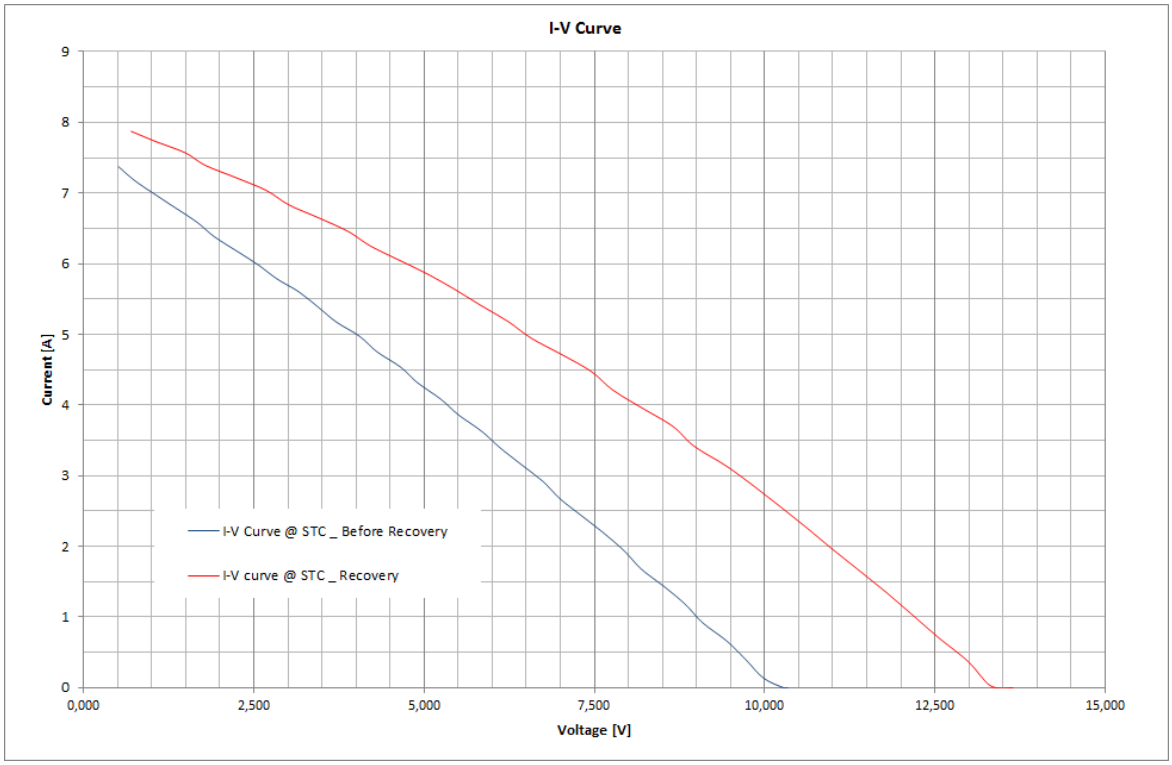
The following chapter is structured in the following way; a table reports STC values for a specific configuration and replication then there are one graph for each module. Modules sequence is divided three by three; after this short explanation we can see measurements results:

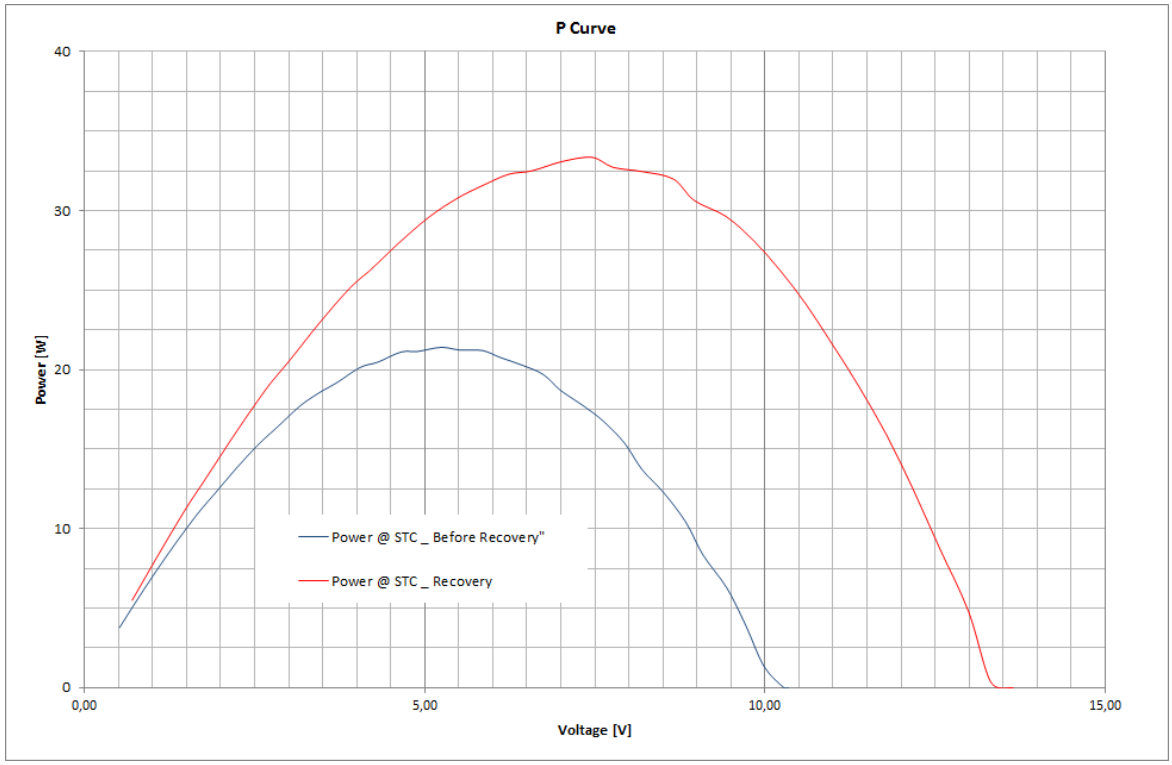
S/N	Configuration	Voc [V]	Pmax. [W]	Before regeneration			After regeneration		
				Degradation %		Voc [V]	Pmax. [W]	Degradation %	
				Voc [%]	Pmax. [%]			Voc [%]	Pmax. [%]
4463	1-Test1	10,22	21,4	-72,9	-91,3	13,43	33,4	-64,5	-86,4
3977	1-Test1	15,81	37,4	-58,2	-84,7	19,66	53,95	-48,0	-78,0
3899	1-Test1	18,45	50,7	-51,2	-79,3	21,44	67,47	-43,3	-72,5

Diagram setup of configuration 1, test 1:

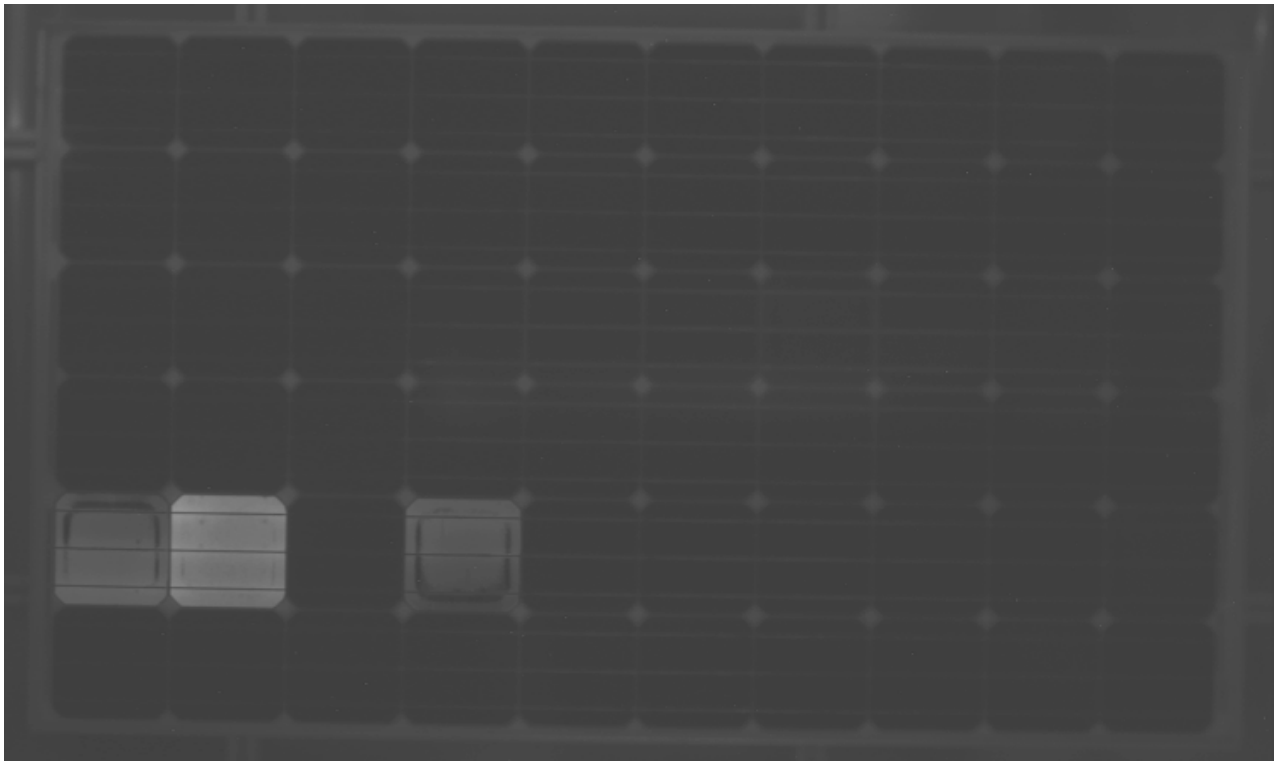


S/N: 1105M603S601004463:

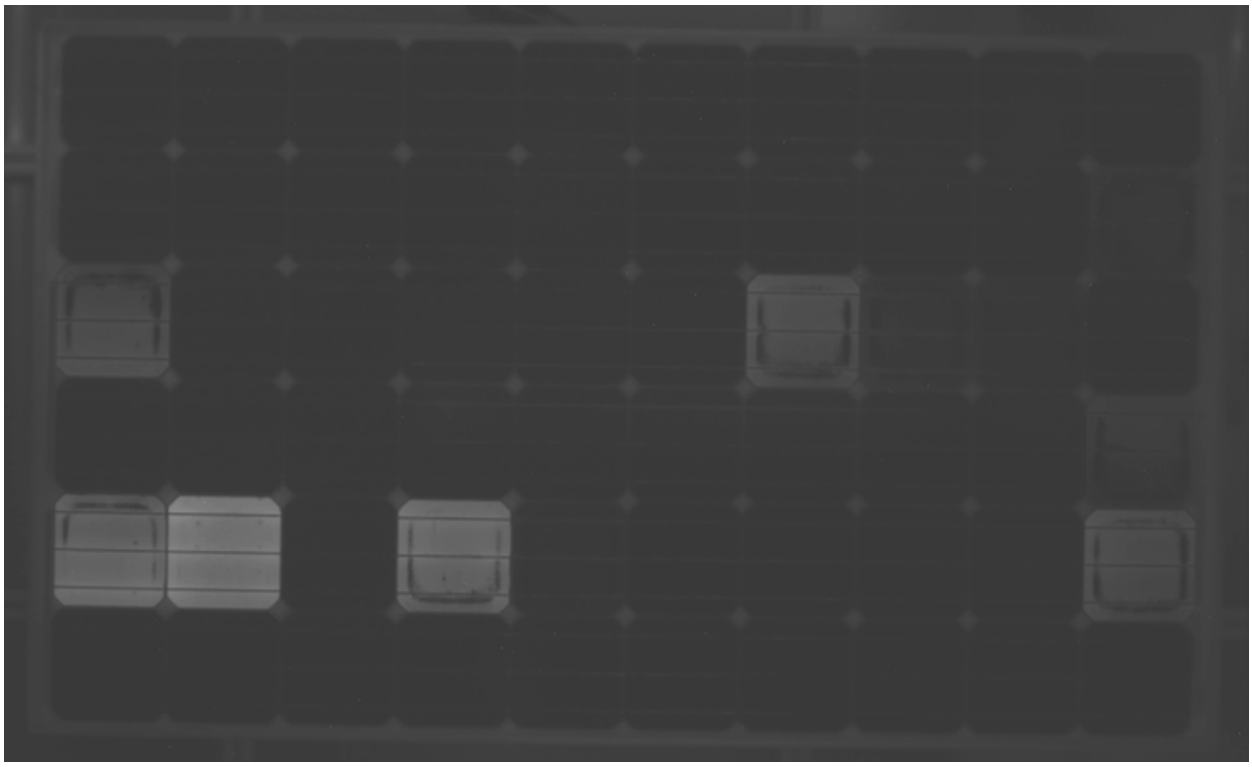




Before:



After:



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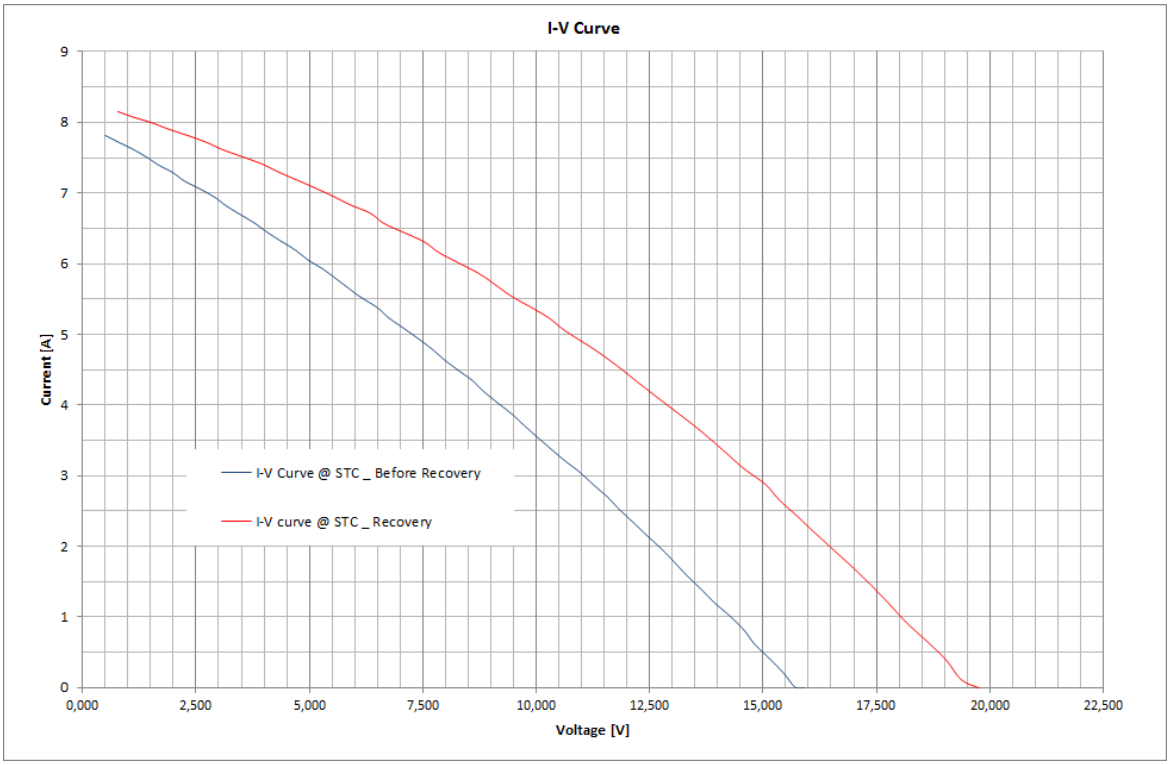
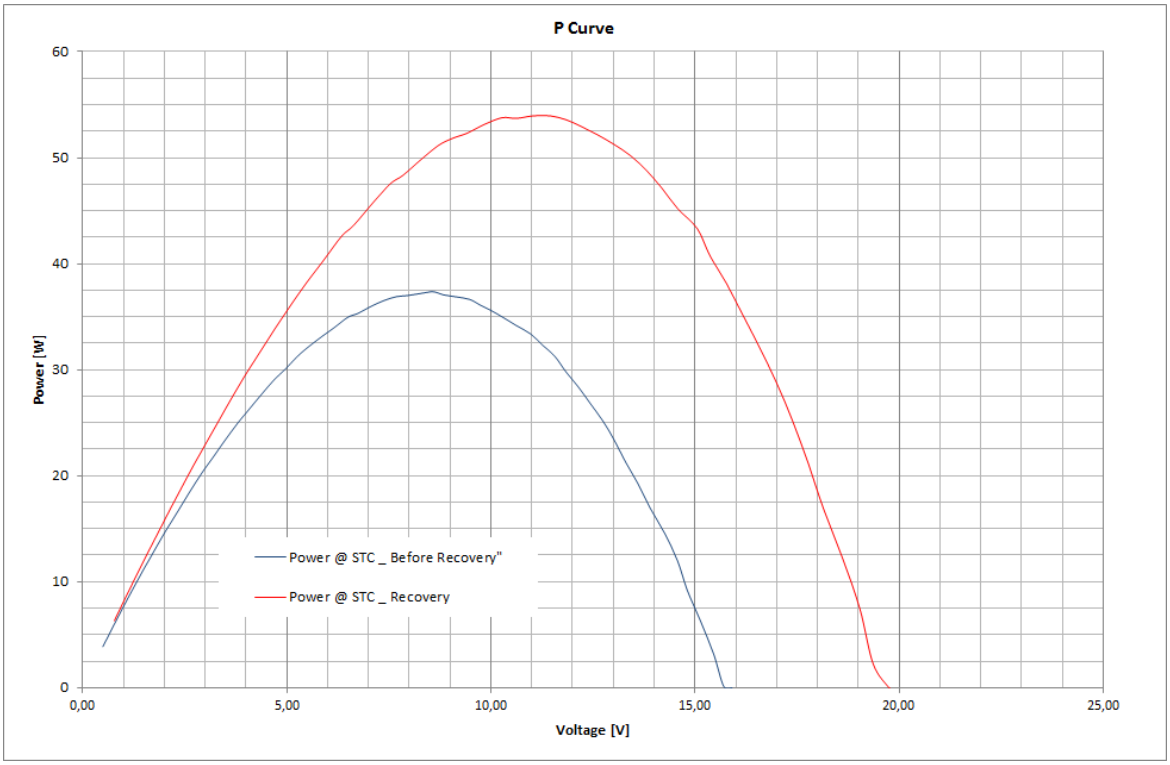
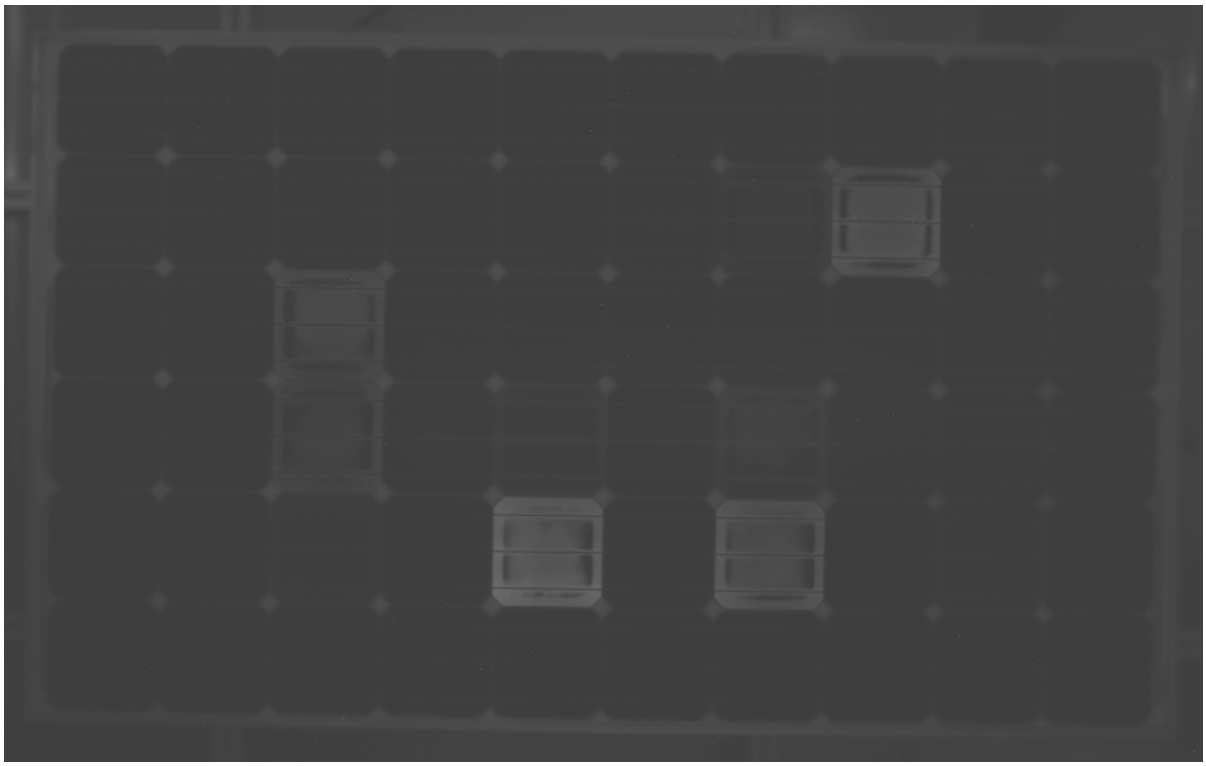
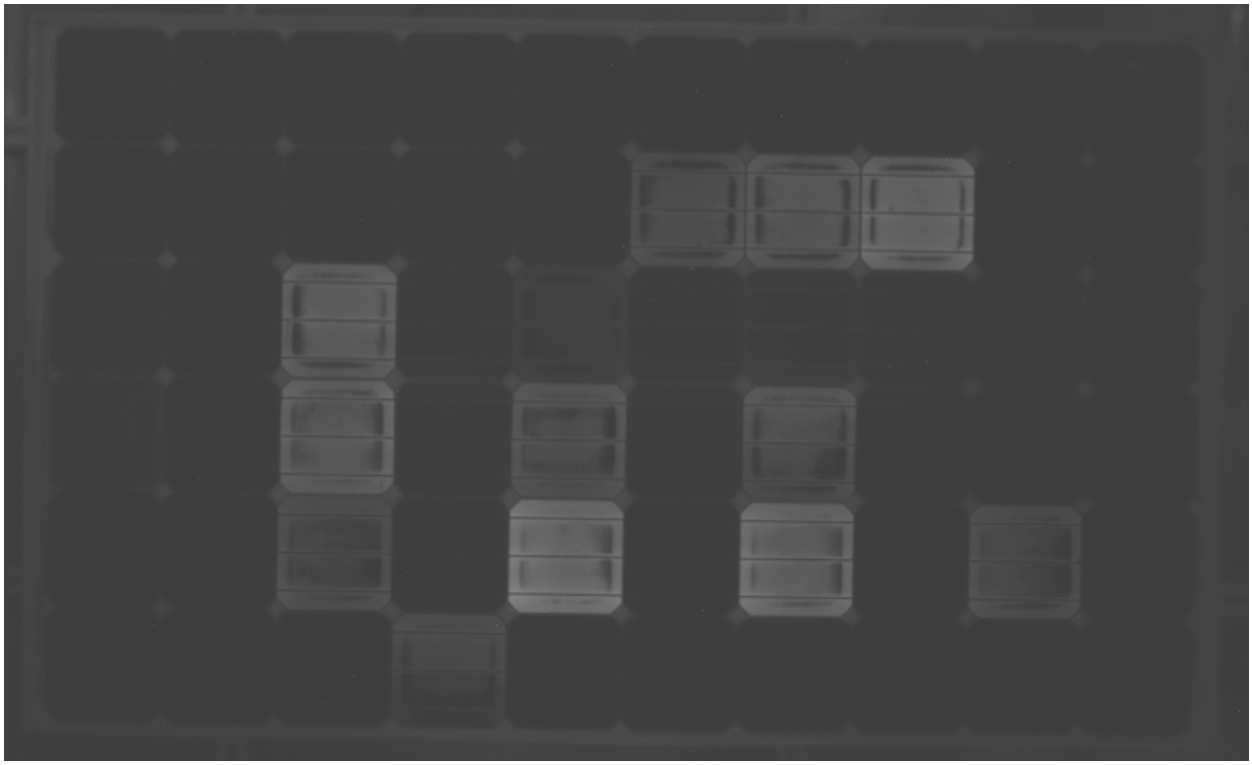




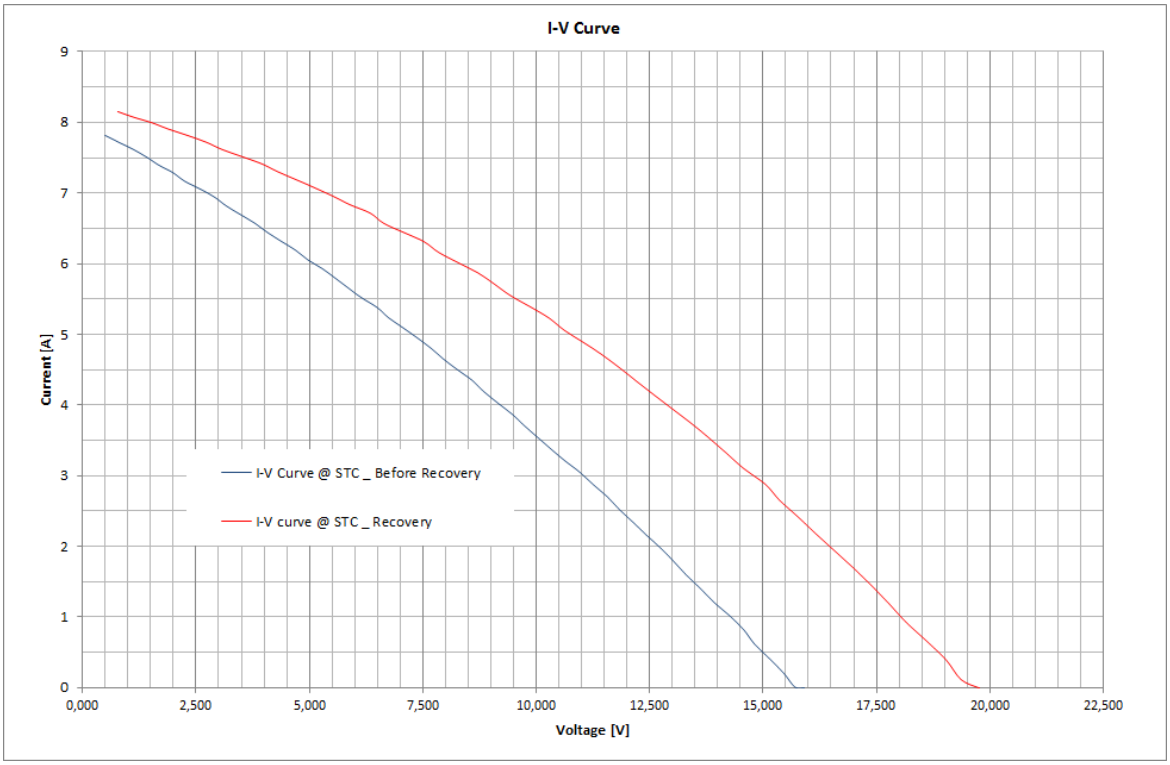
Before:

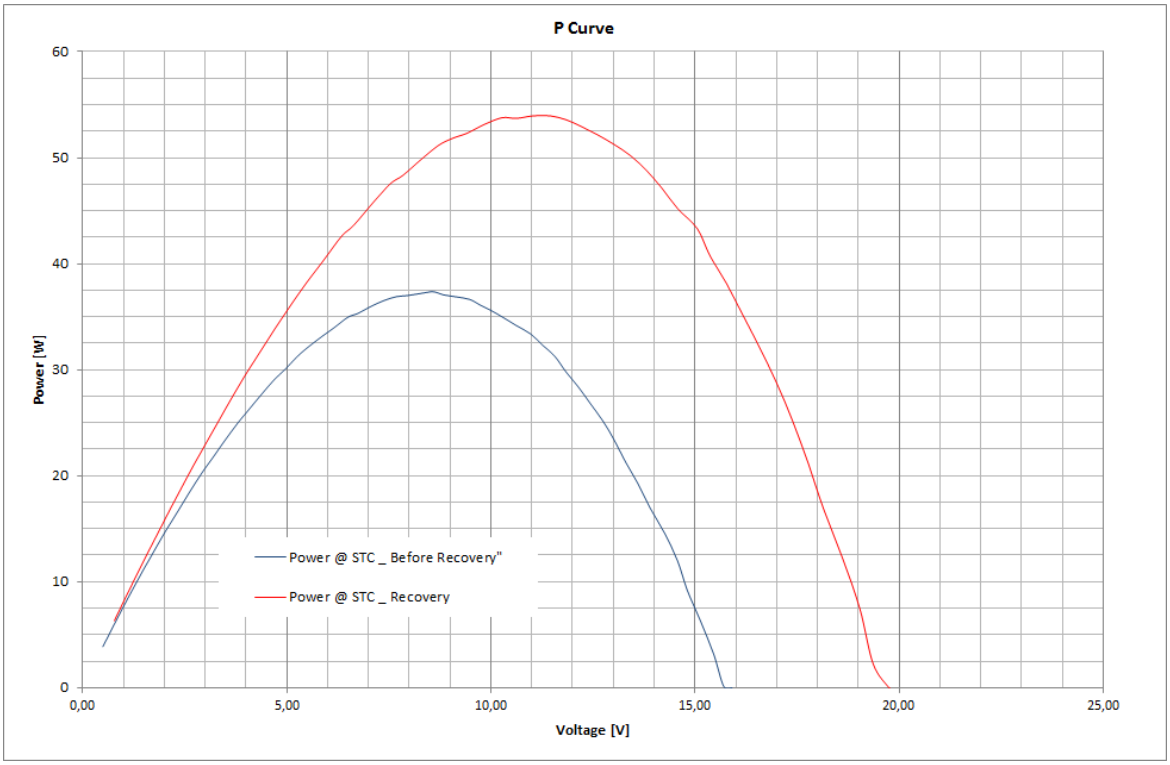


After:

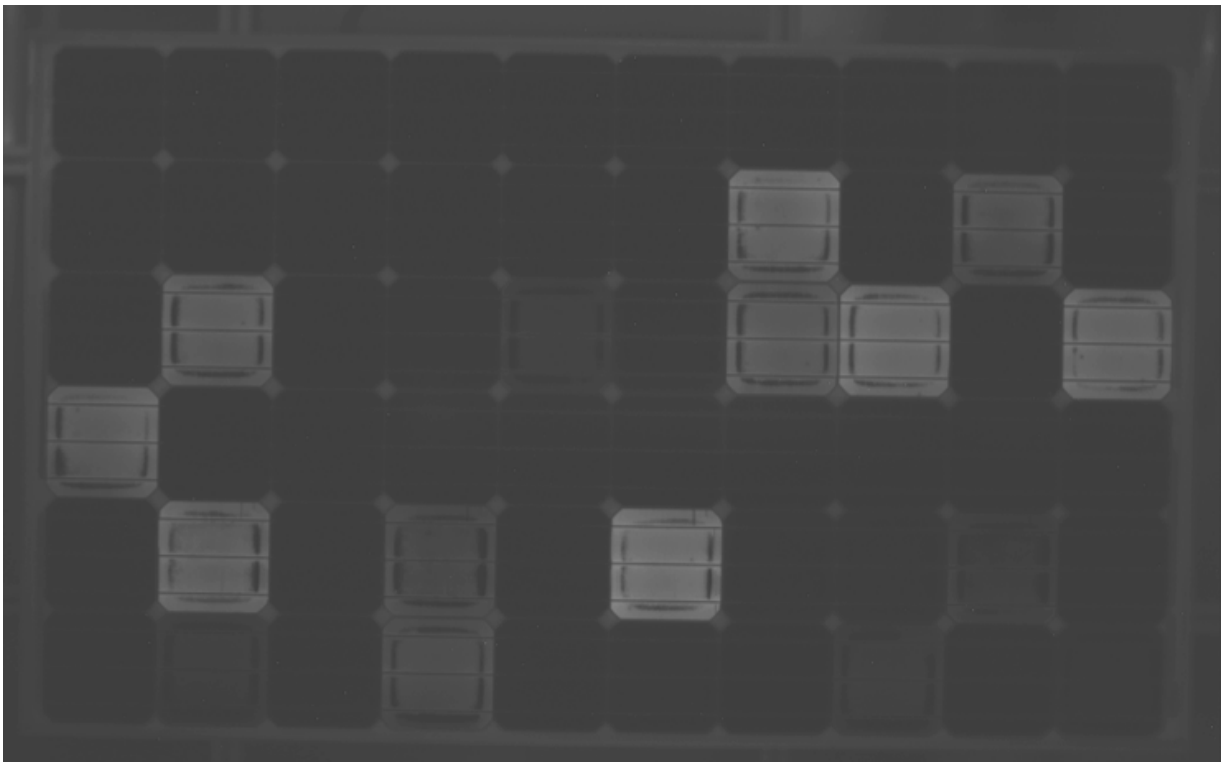


S/N: 1105M603S601003899:

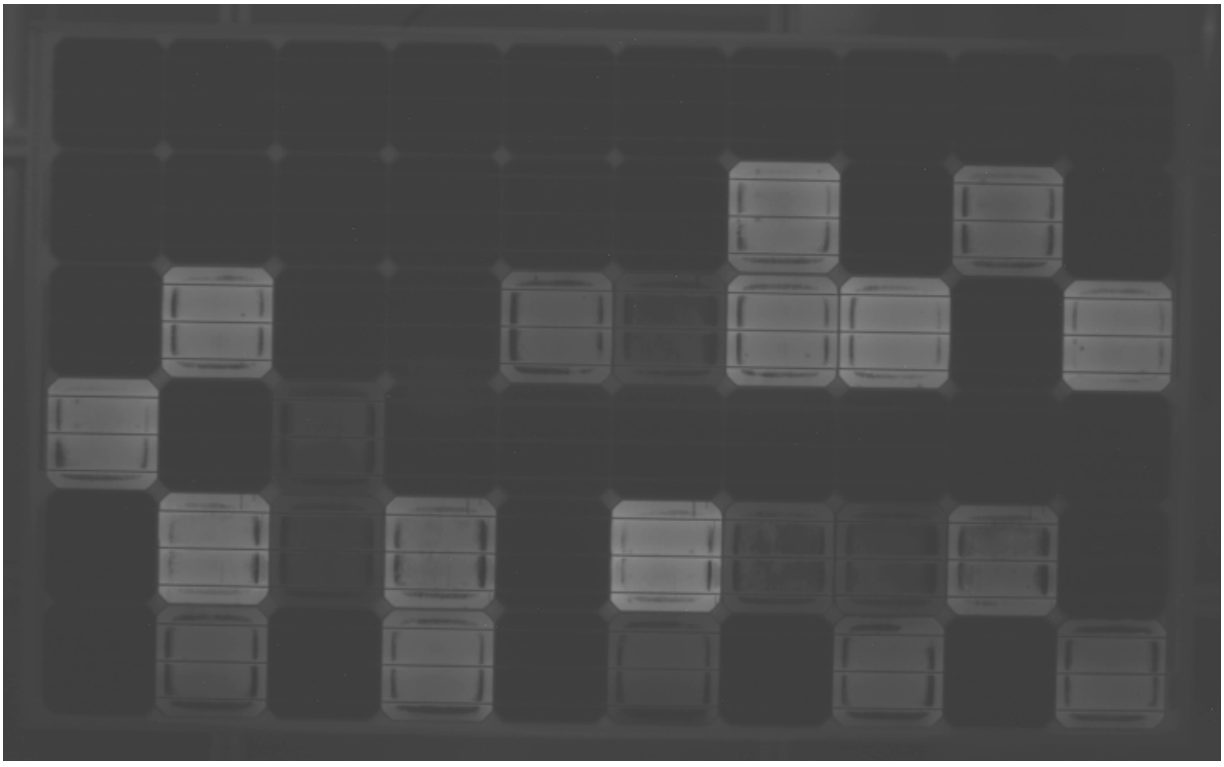




Before:

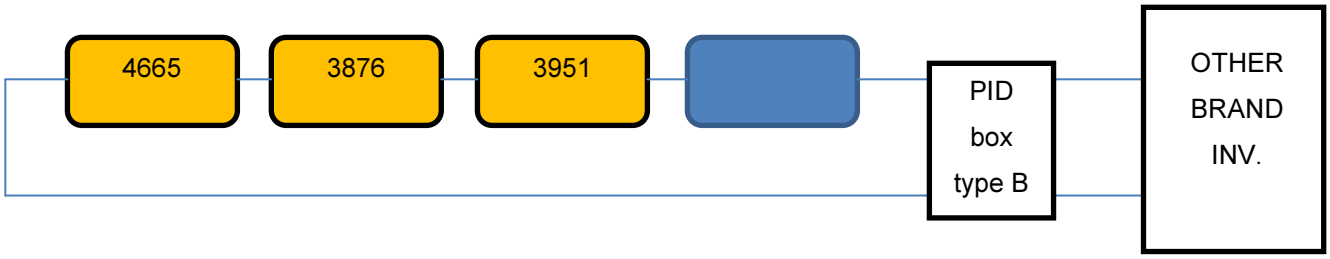


After:

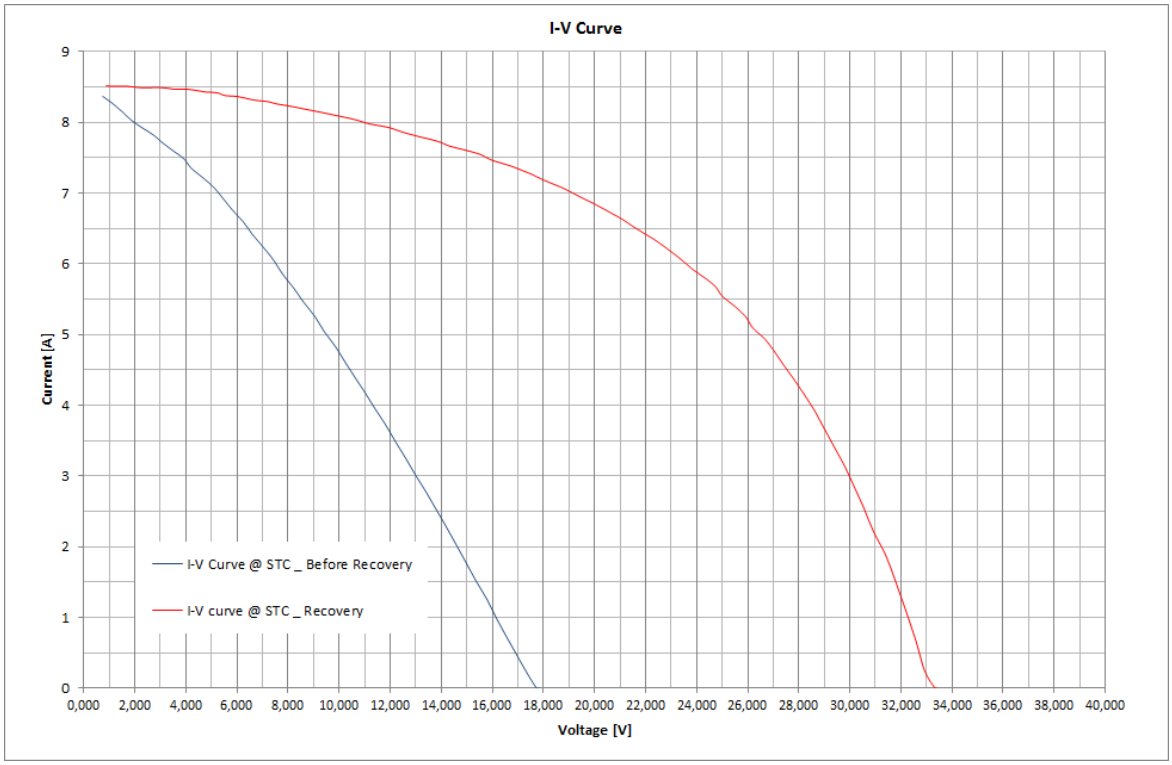


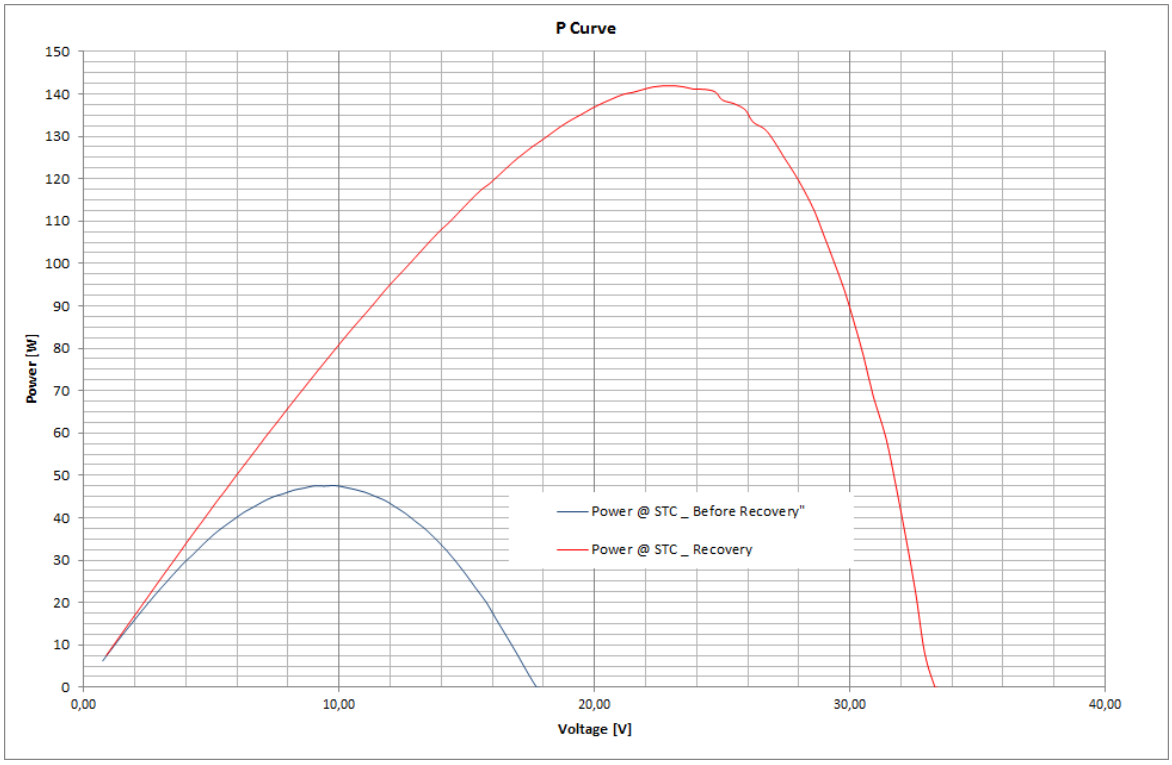
S/N	Configuration	Voc [V]	Pmax. [W]	Before regeneration		After regeneration			
				degradation %		Voc [V]	Pmax. [W]	degradation %	
				Voc [%]	Pmax. [%]			Voc [%]	Pmax. [%]
4665	2-Test1	17,74	47,6	-53	-80,6	33,19	142,0	-12,1	-42,0
3876	2-Test1	14,61	35	-61,3	-85,7	30,73	137,5	-18,7	-43,9
3951	2-Test1	8,17	15,1	-78,4	-93,8	27,16	101,1	-28,1	-58,7

Diagram setup of configuration 2, test 1:

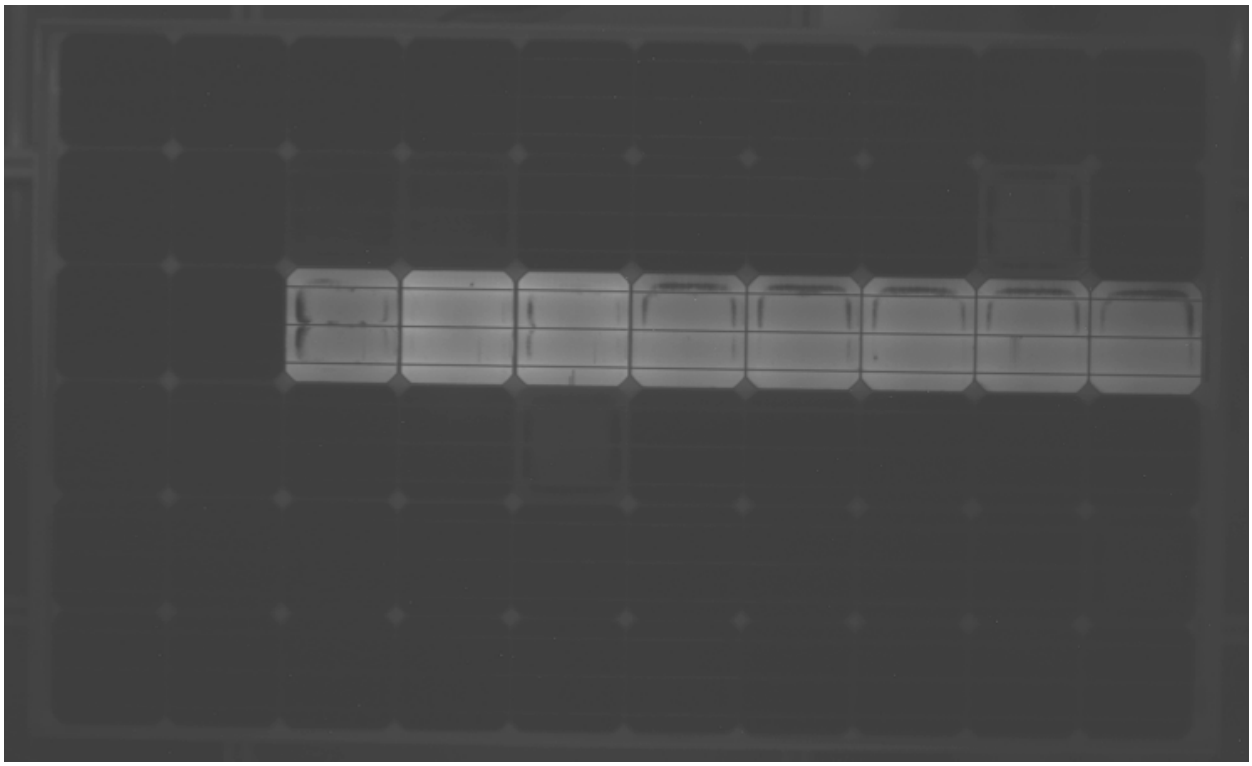


S/N: 1105M603S601004665

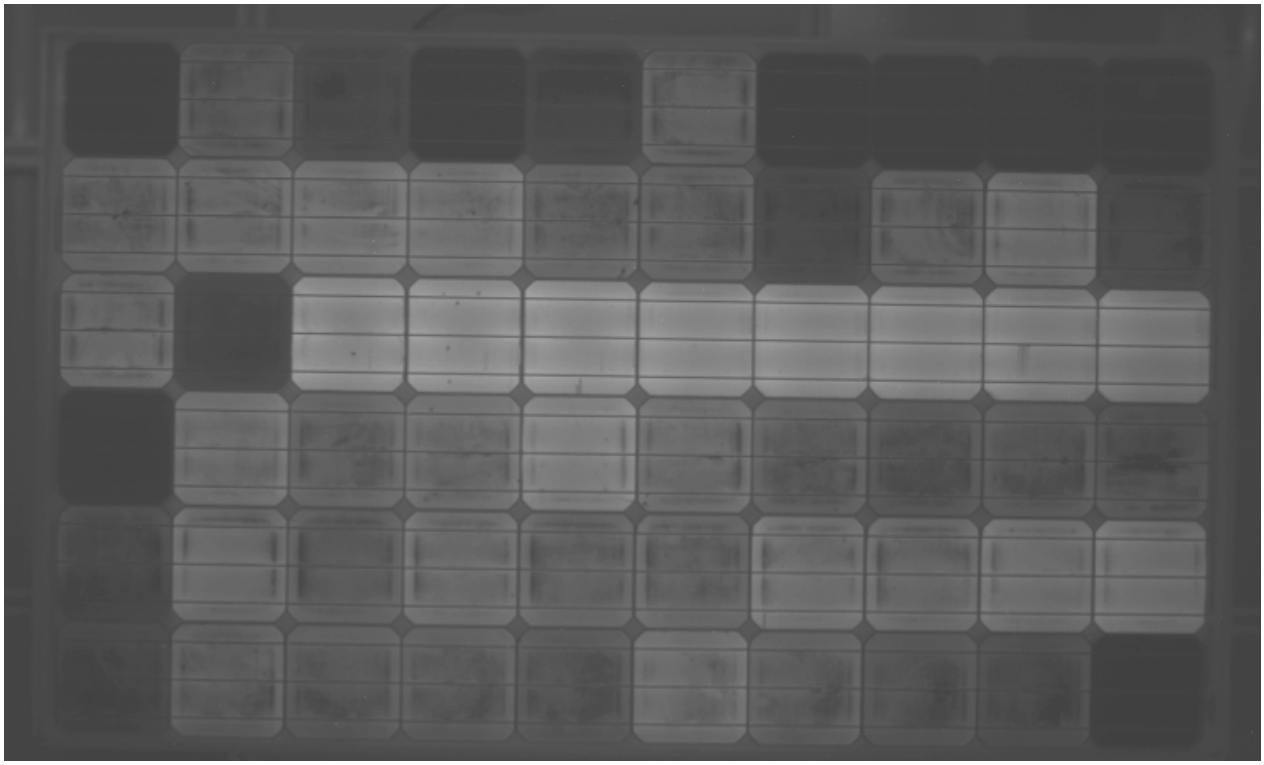




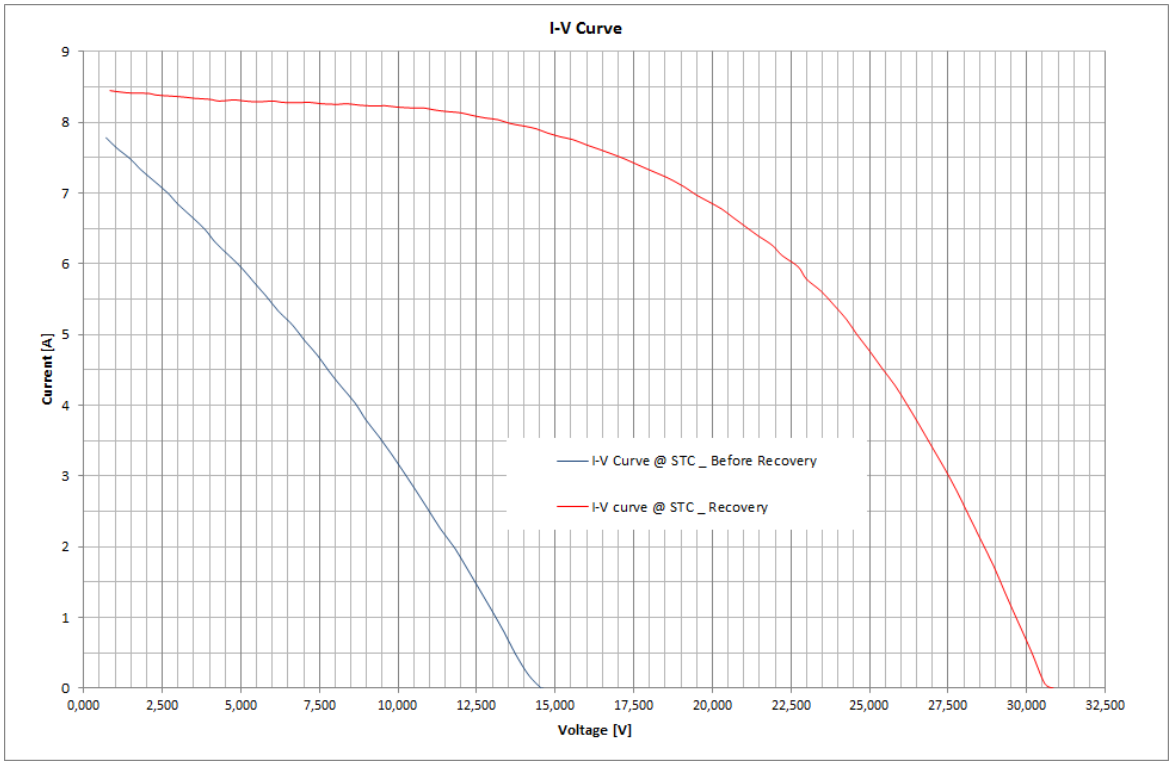
Before:

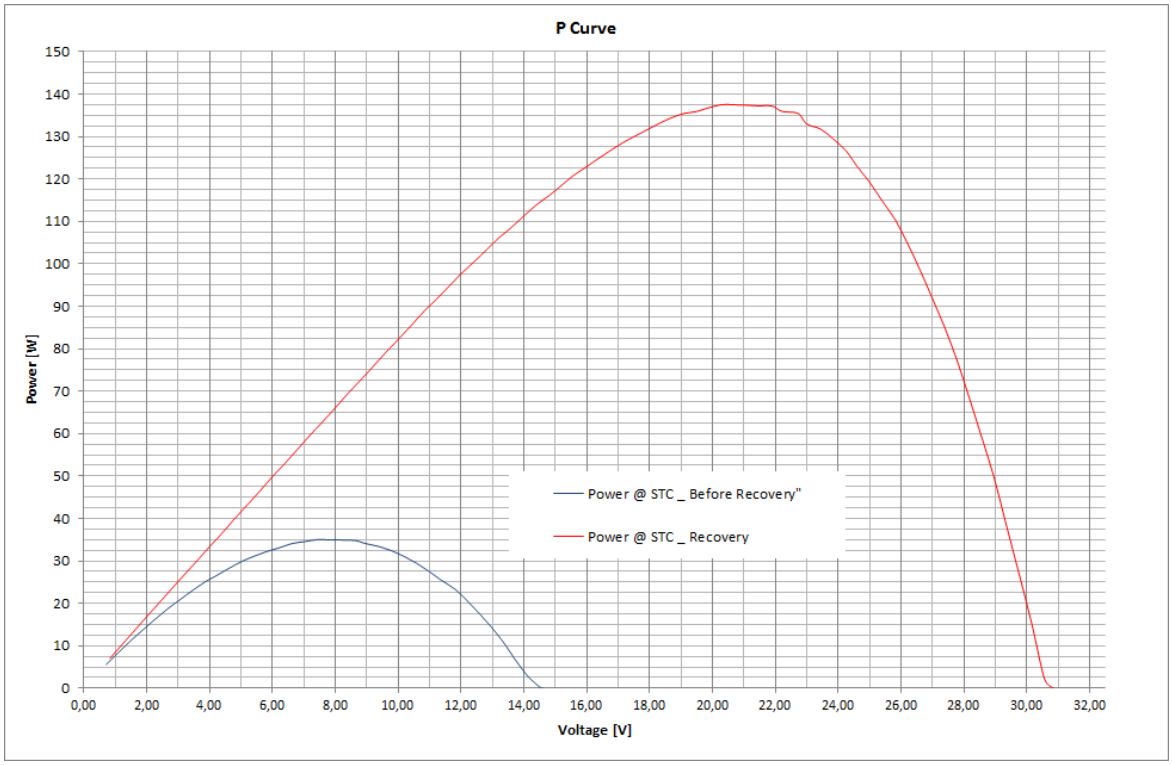


After:

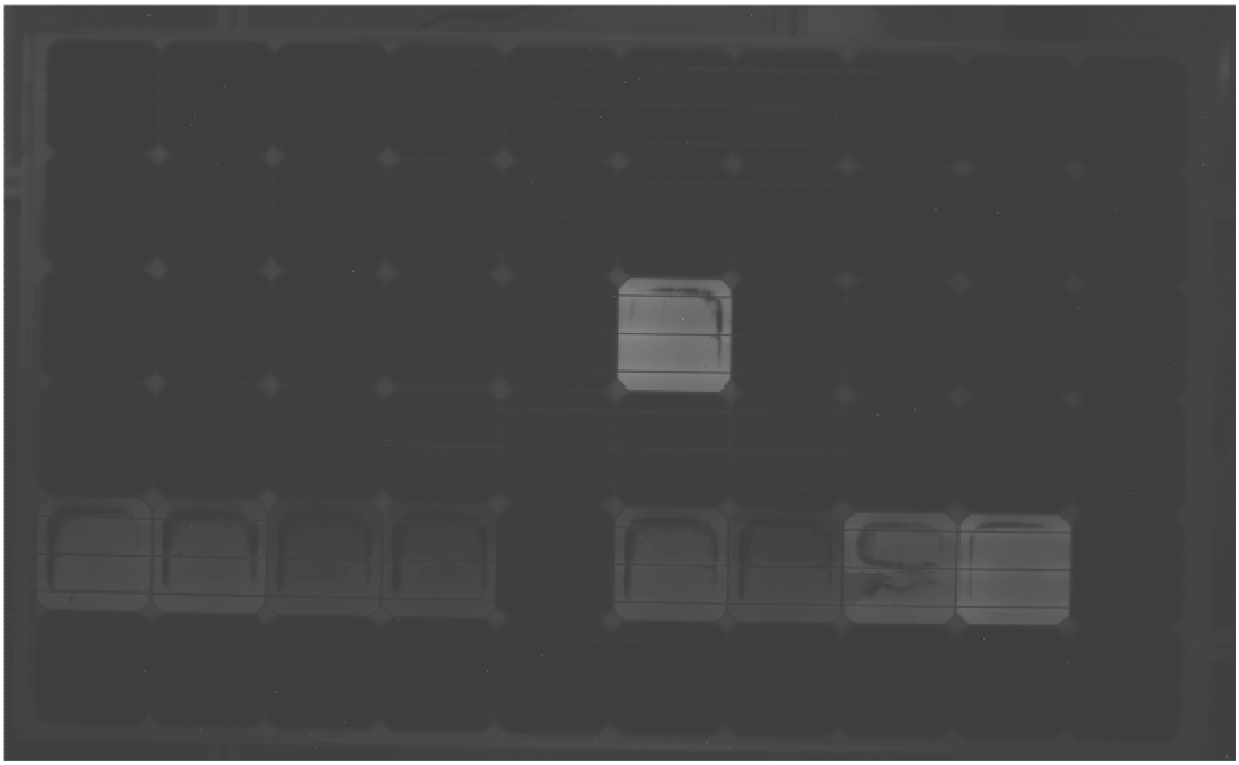


S/N: 1105M603S601003876:

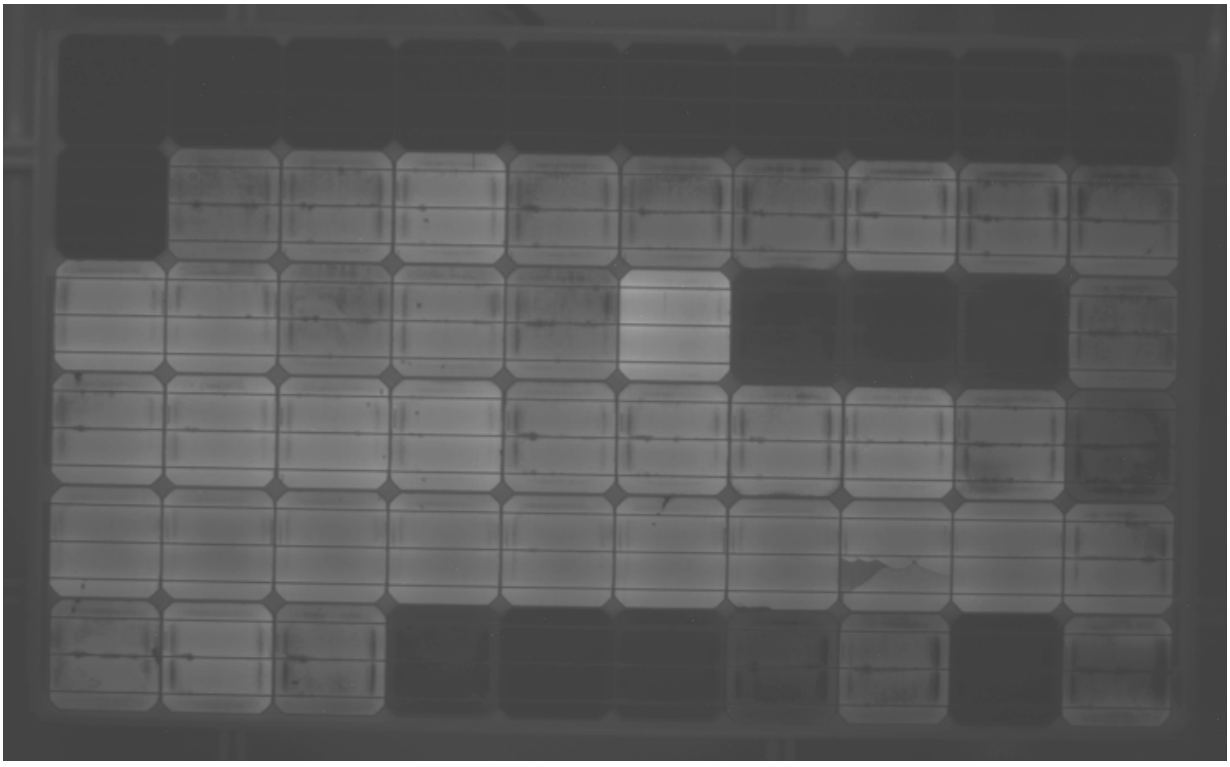




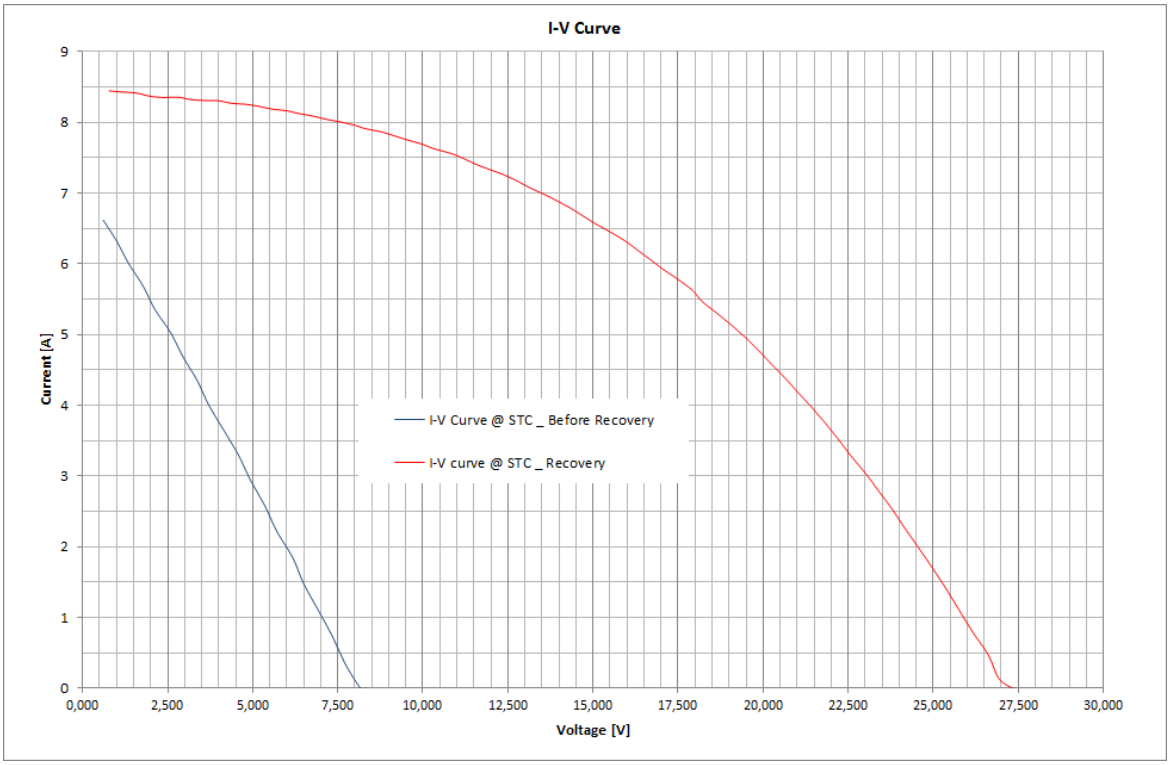
Before:

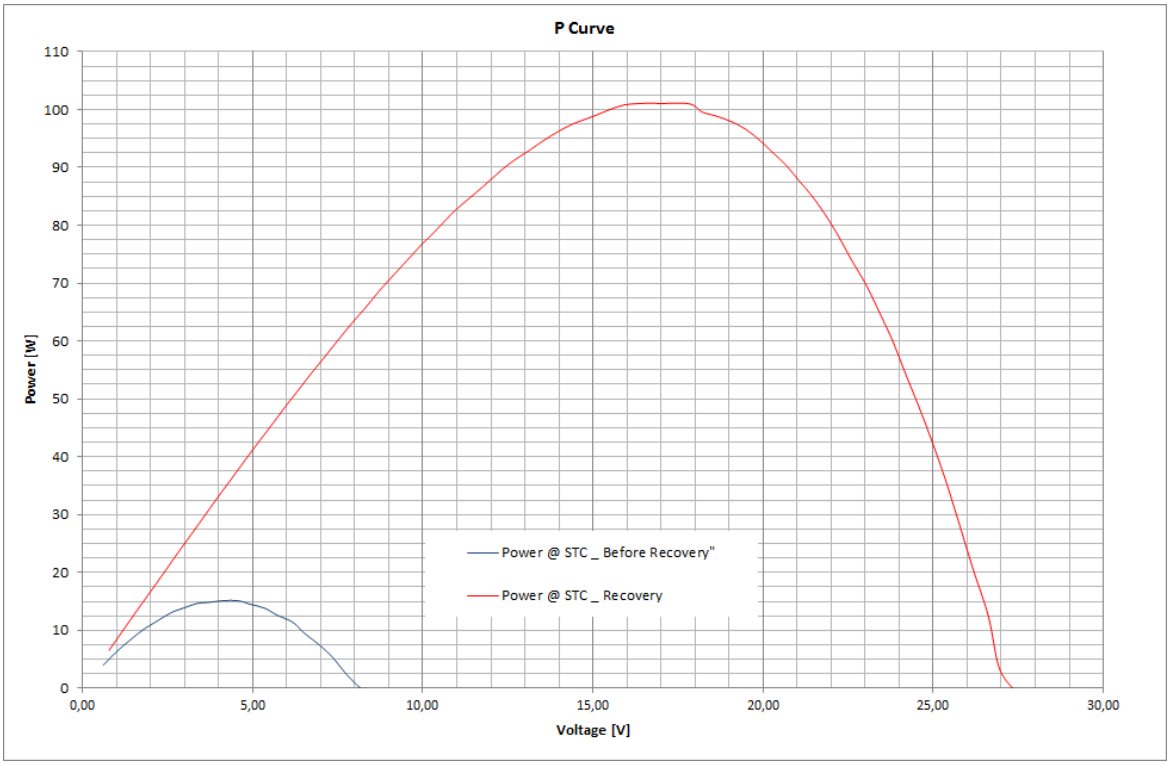


After:

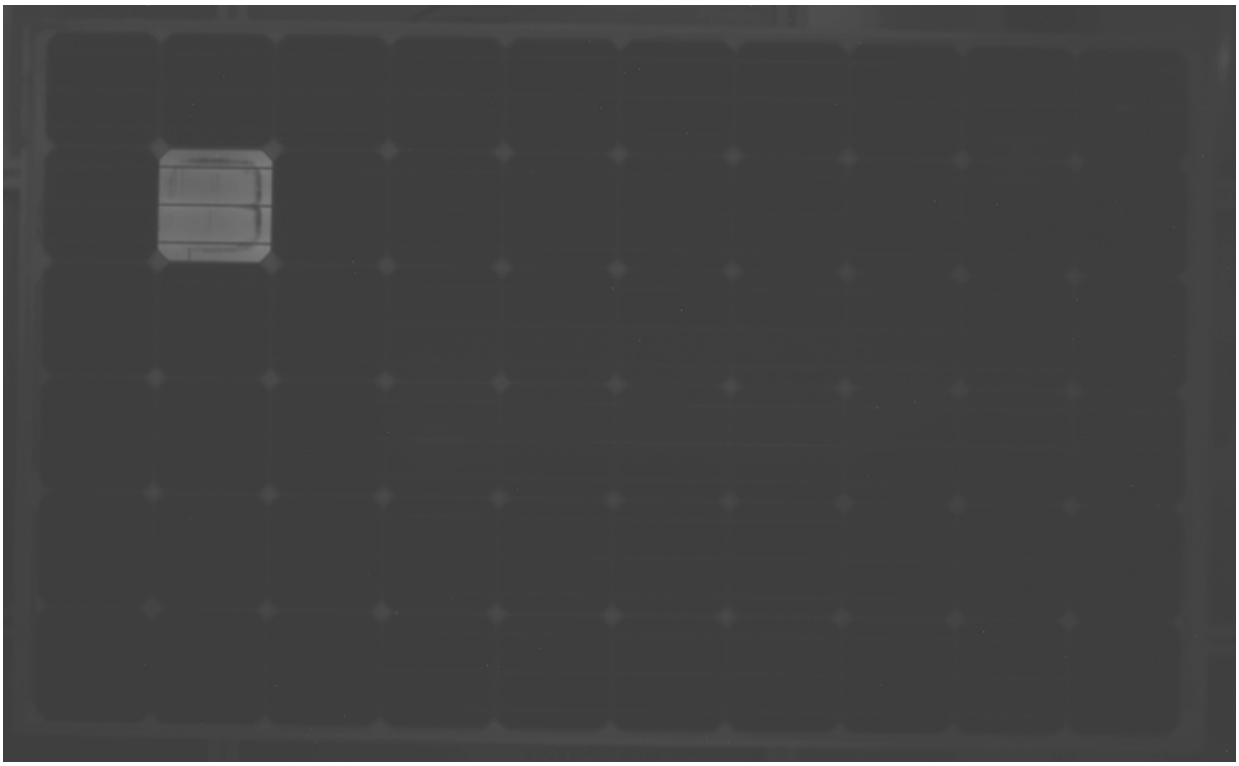


S/N: 1105M603S601003951:

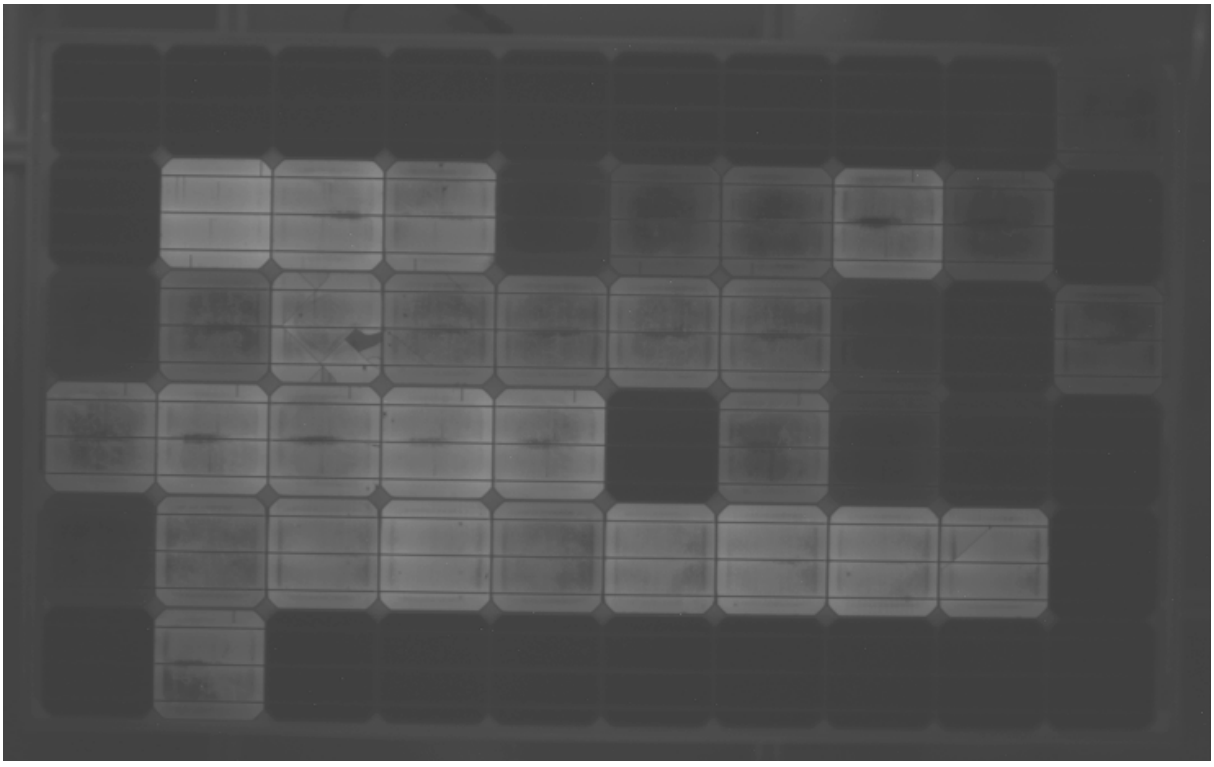




Before:

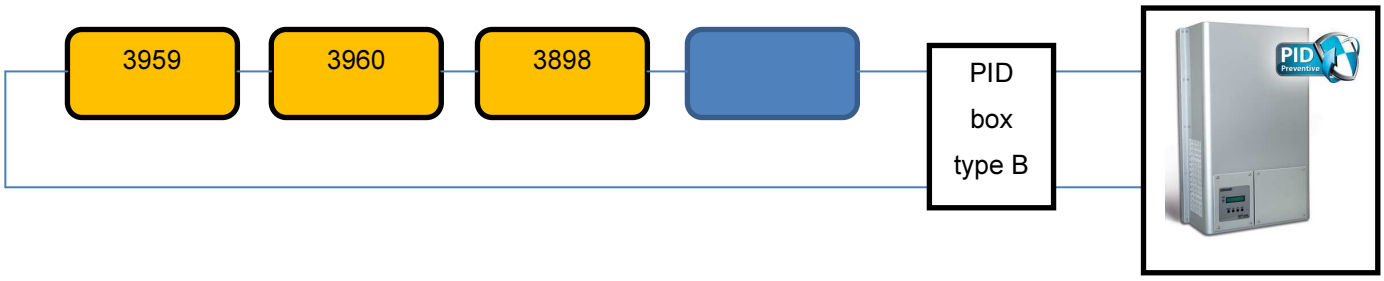


After:

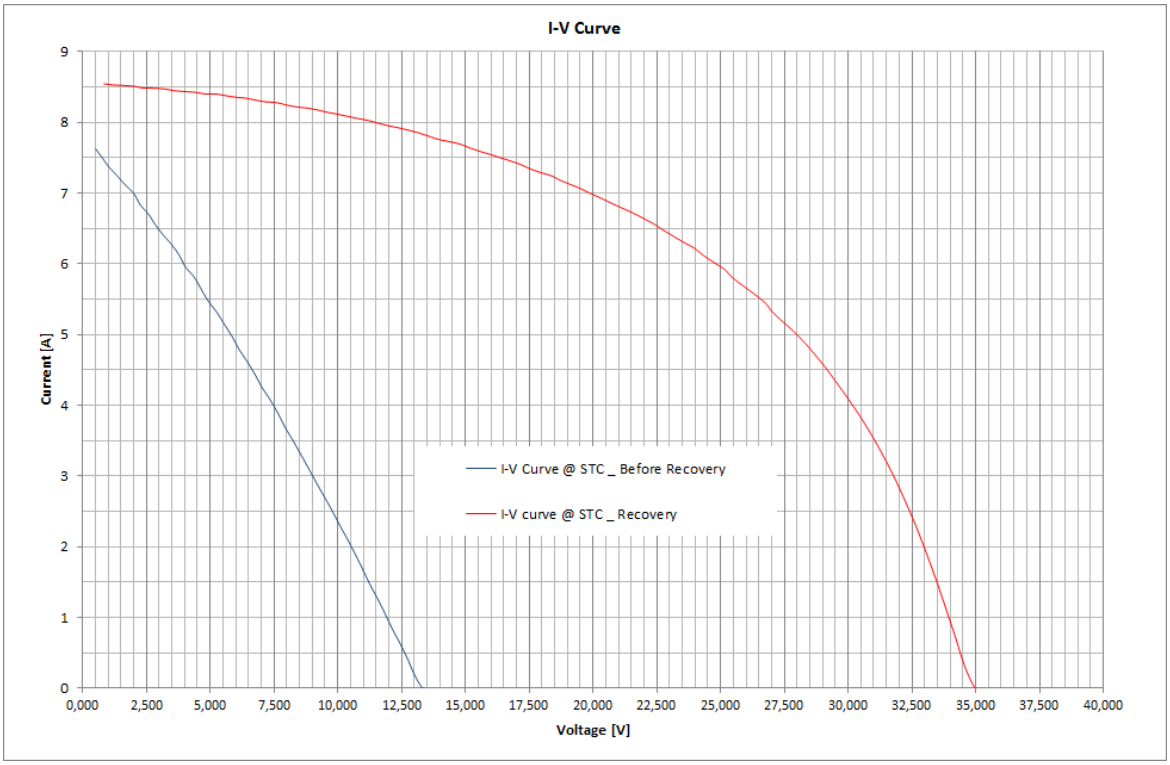


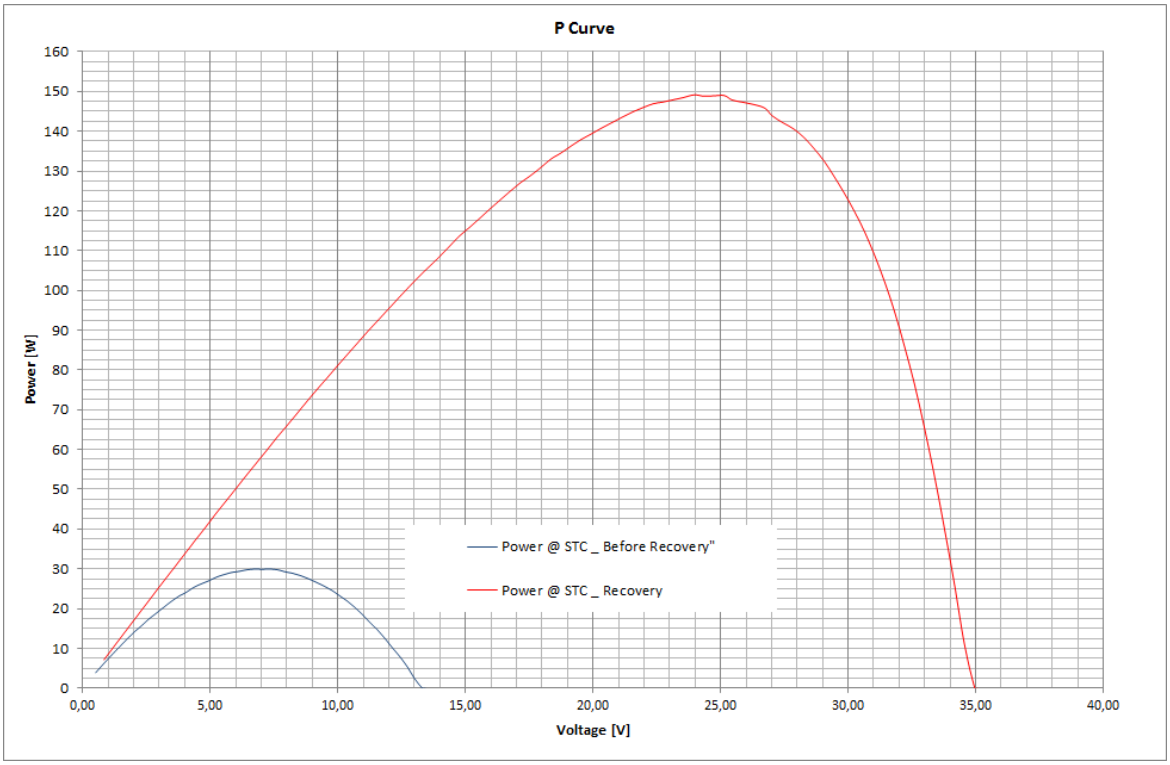
S/N	Configuration	Voc [V]	Pmax. [W]	Before regeneration		After regeneration			
				degradation %		Voc [V]	Pmax. [W]	degradation %	
				Voc [%]	Pmax. [%]			Voc [%]	Pmax. [%]
3959	3-Test1	13,32	30	-64,7	-87,8	34,9	149,2	-7,6	-39,1
3960	3-Test1	20,52	91	-45,7	-62,9	33,65	161,2	-10,9	-34,2
3898	3-Test1	30	132	-20,6	-46,1	34,05	188,5	-9,9	-23,1

Diagram setup of configuration 3, test 1:

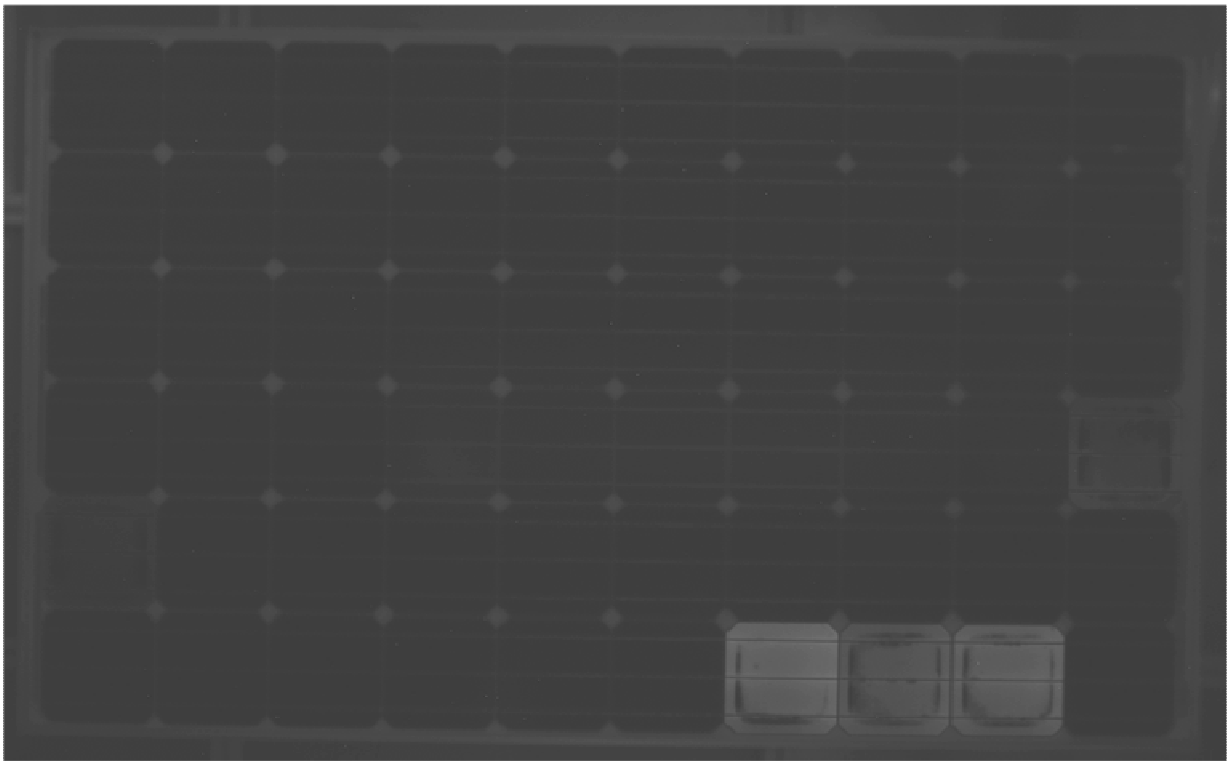


S/N: 1105M603S601003959:

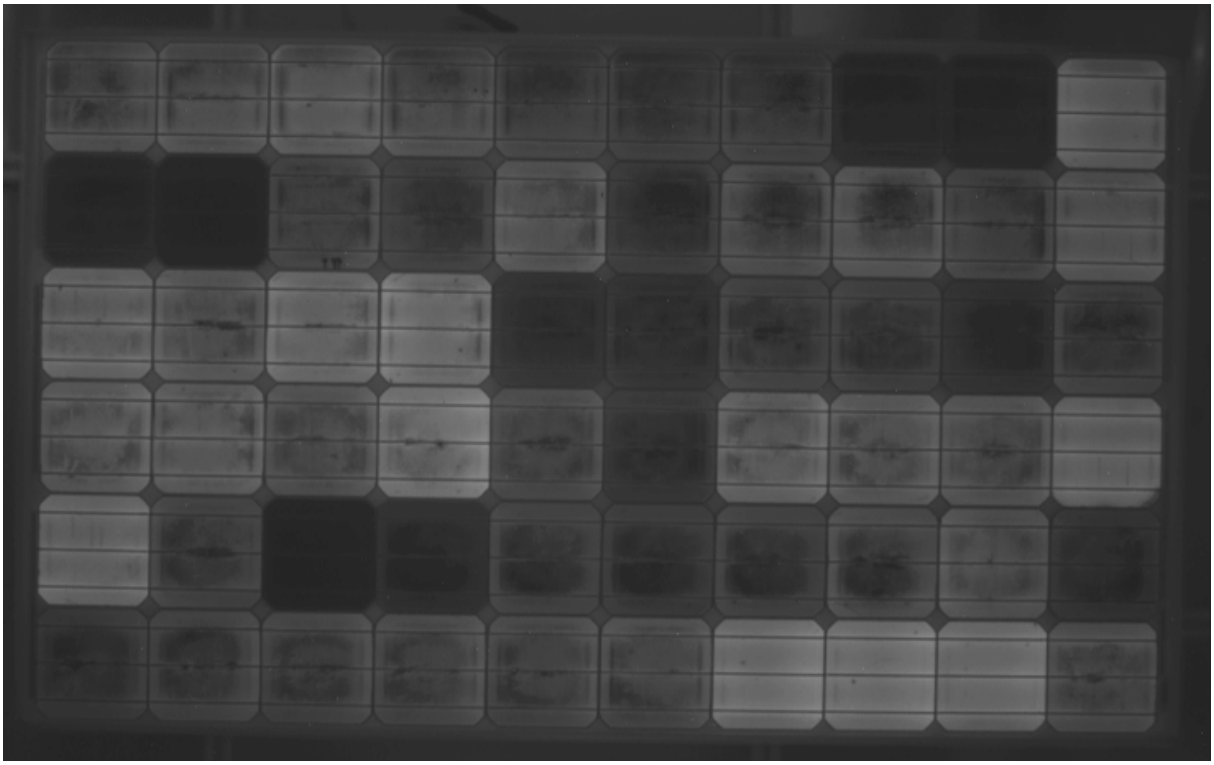




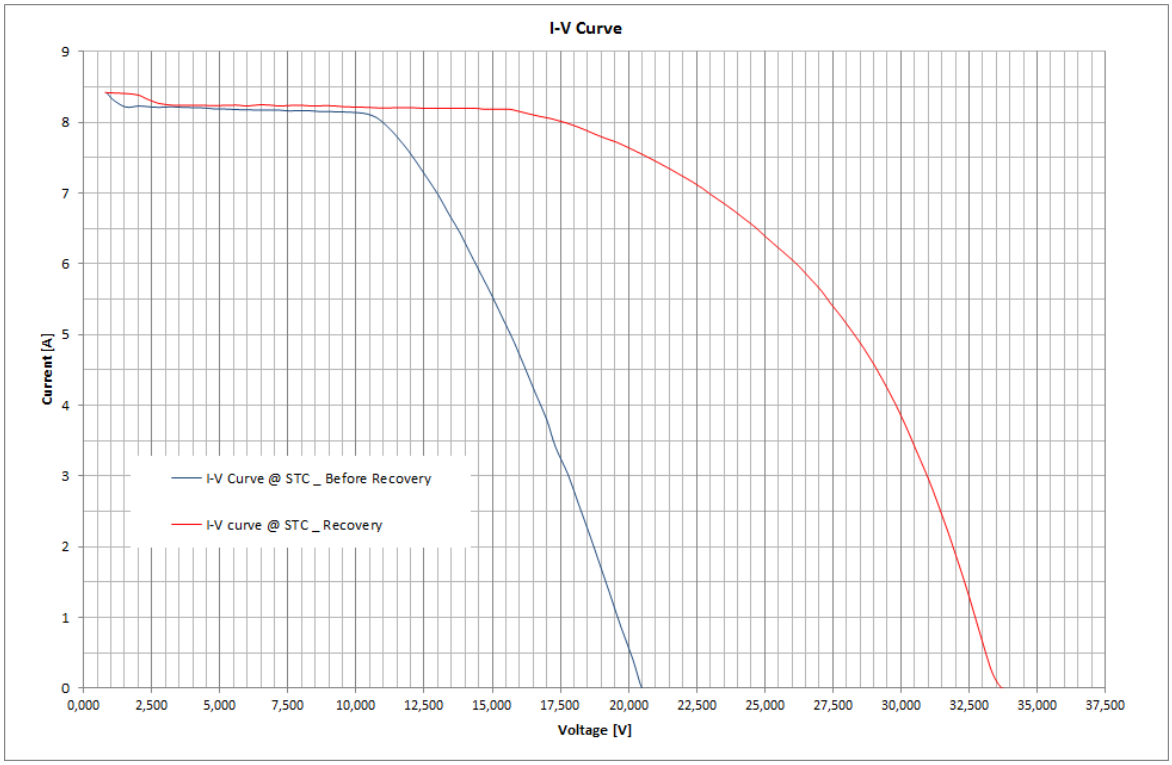
Before:

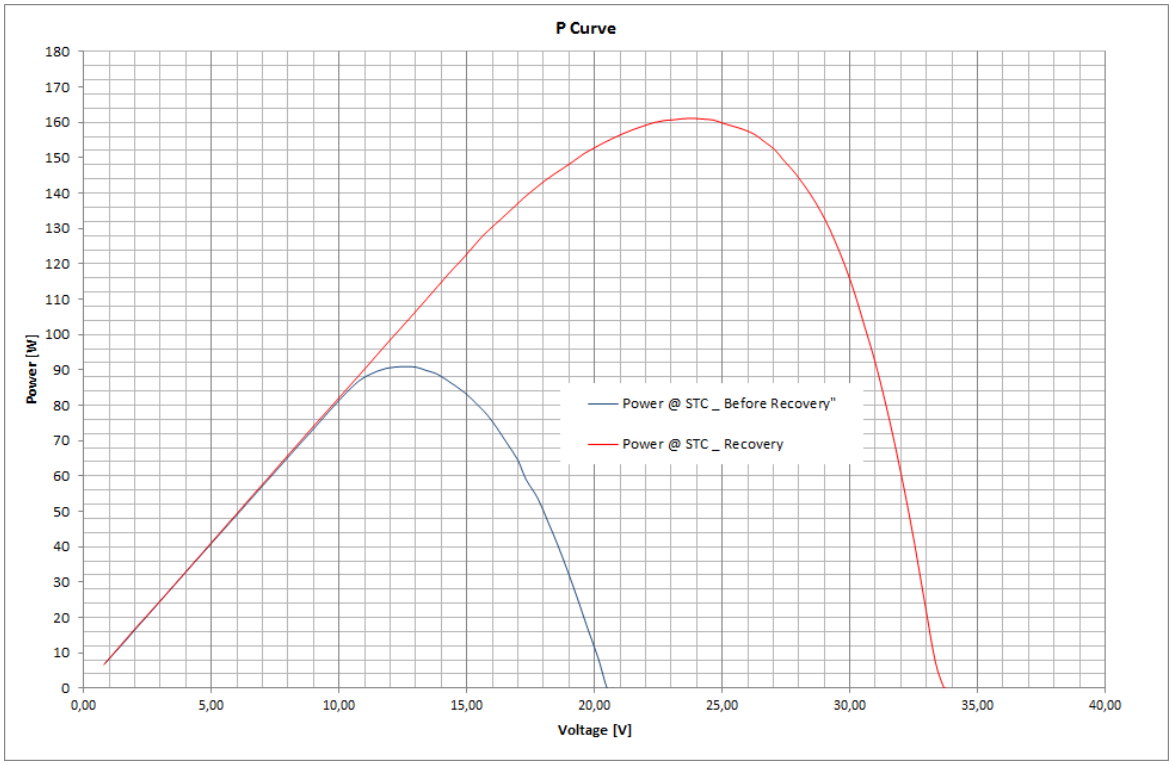


After:

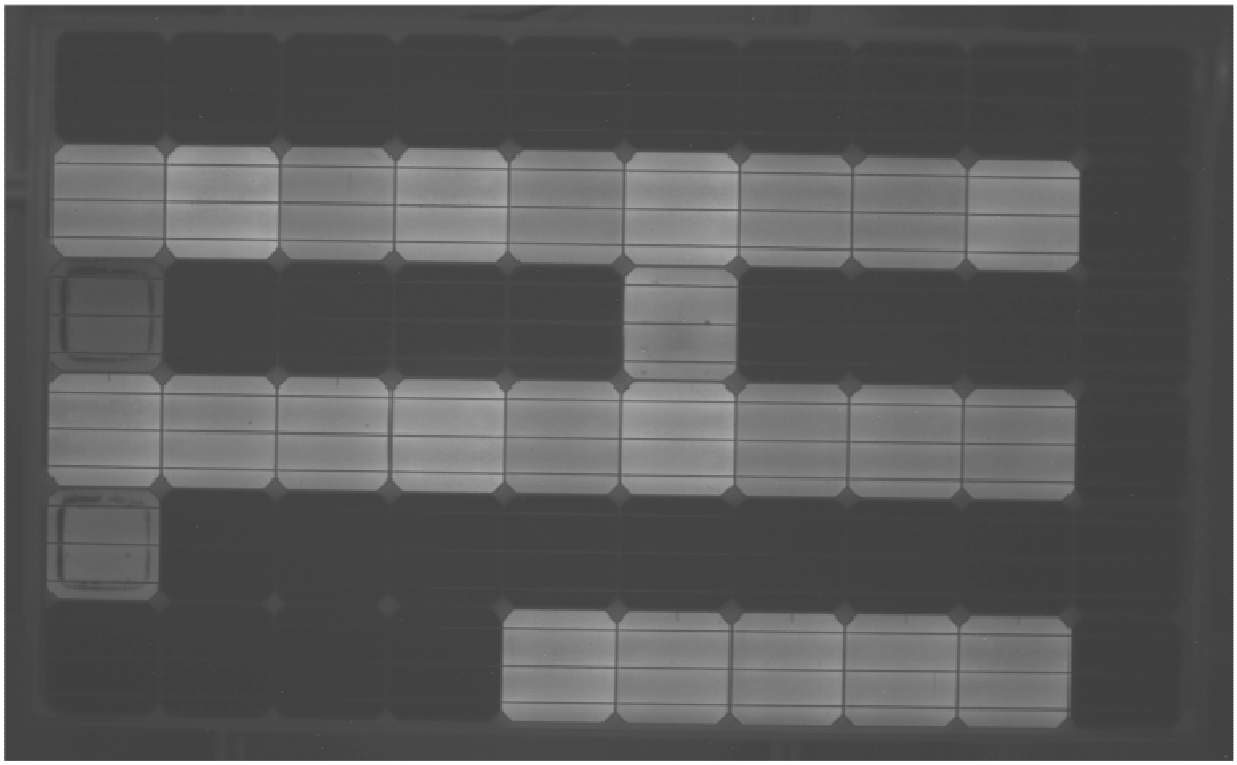


S/N: 1105M603S601003960:

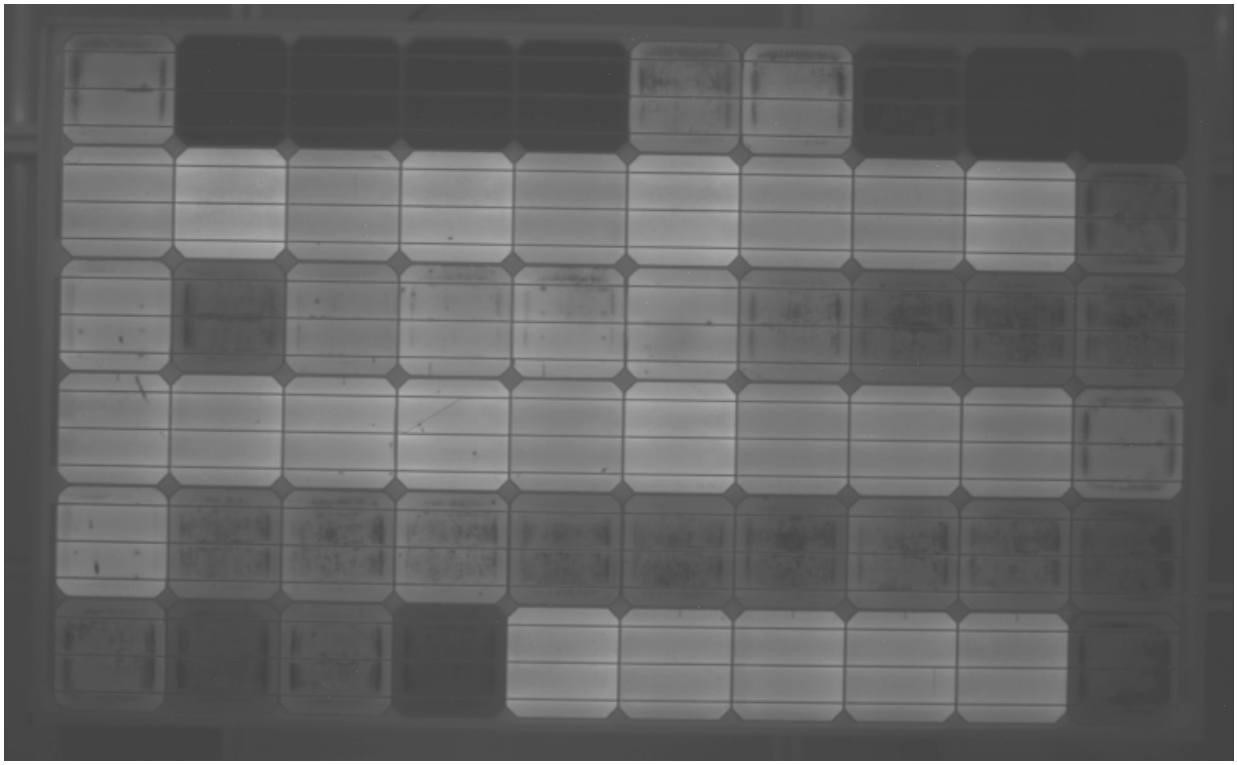




Before:



After:



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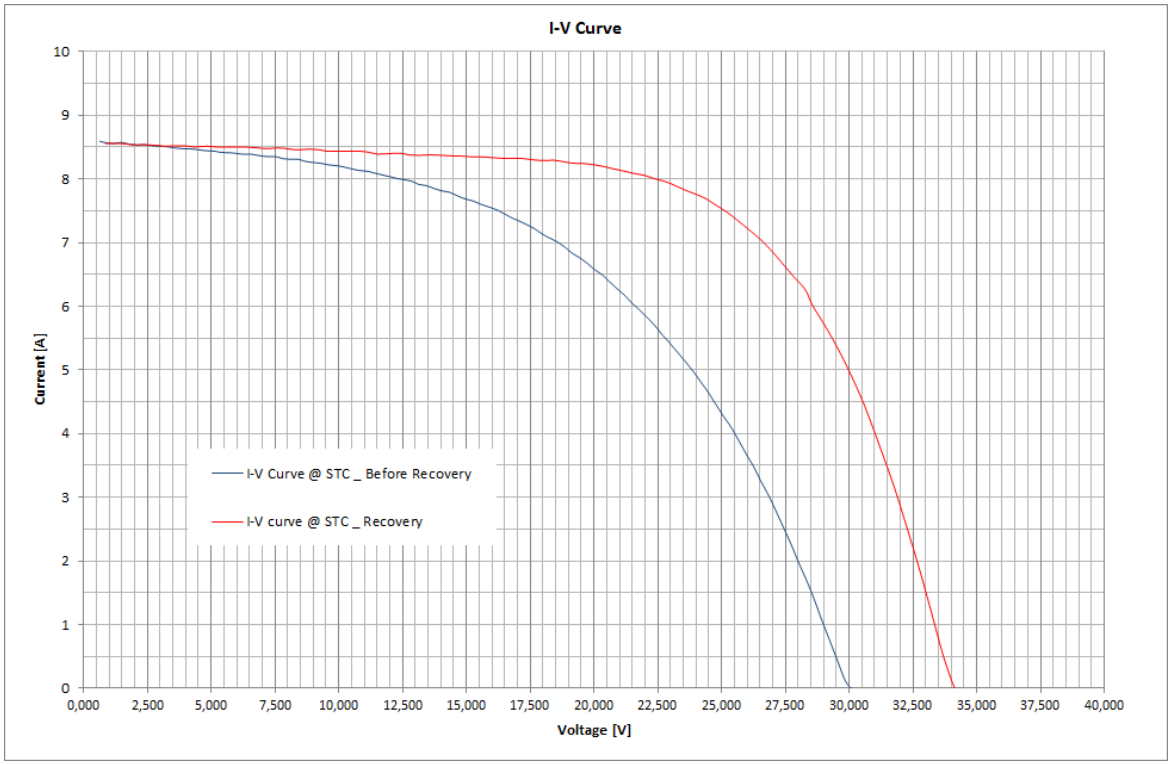

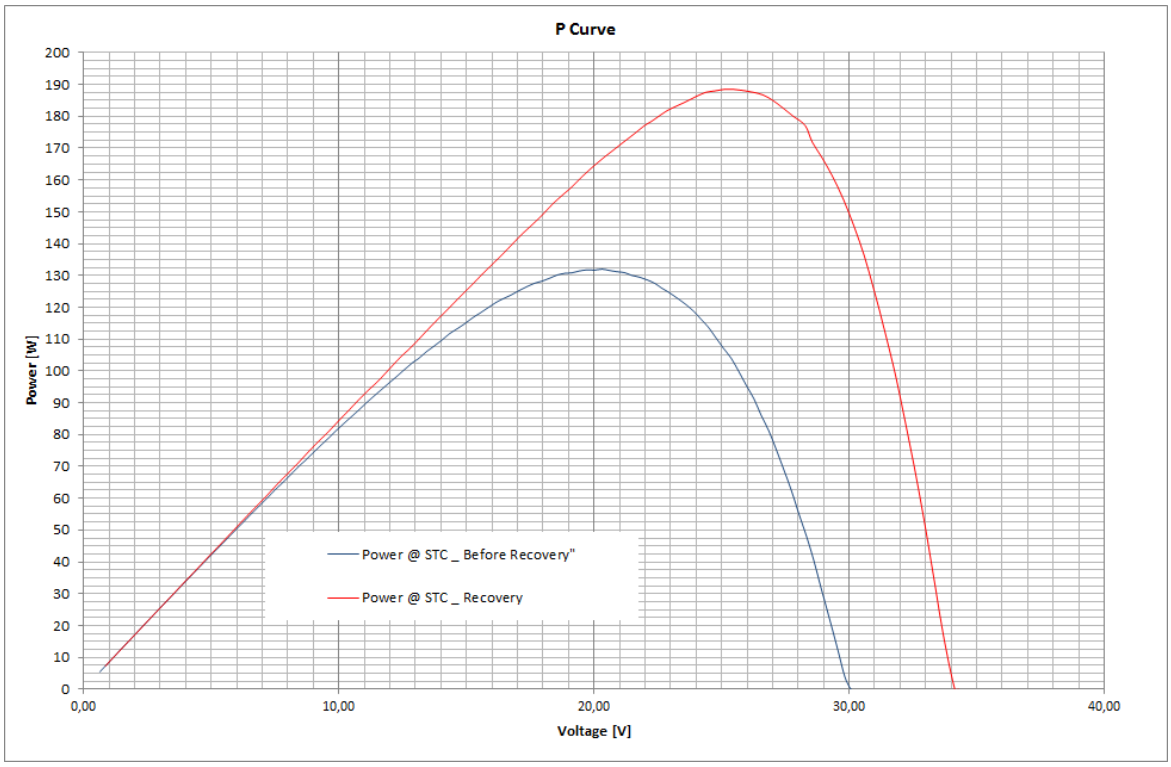

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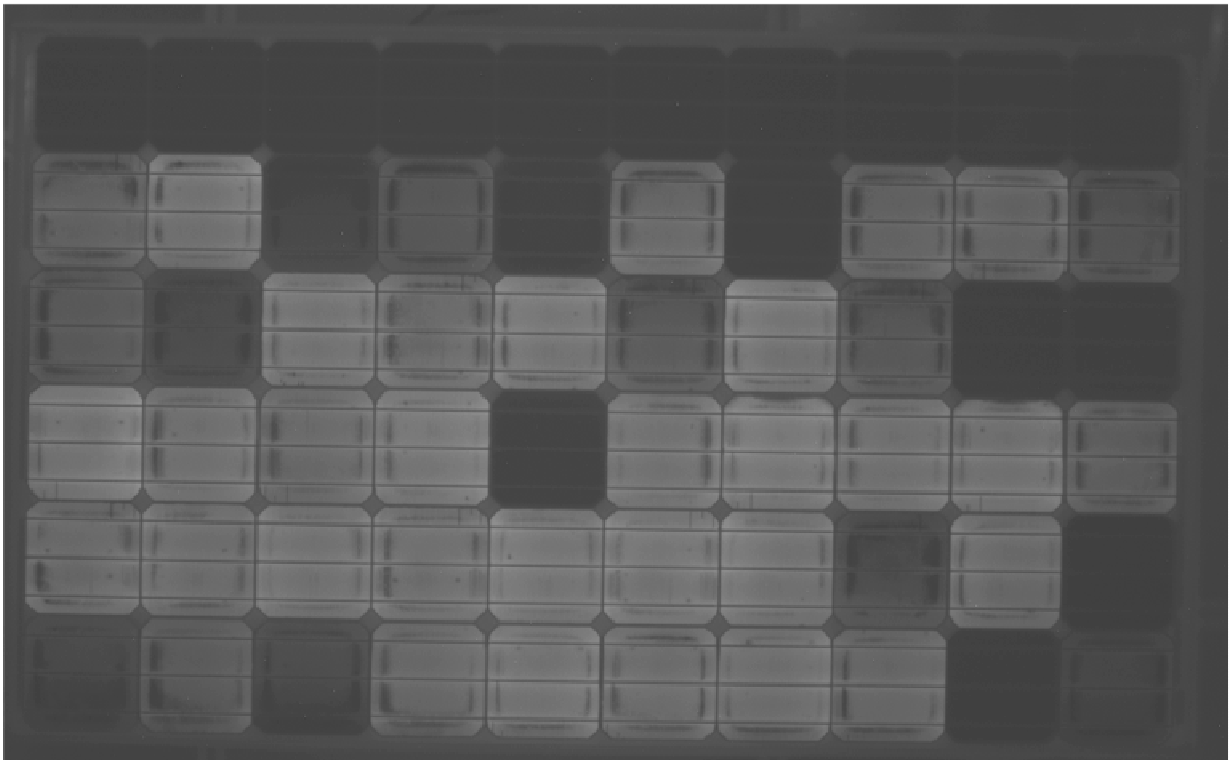

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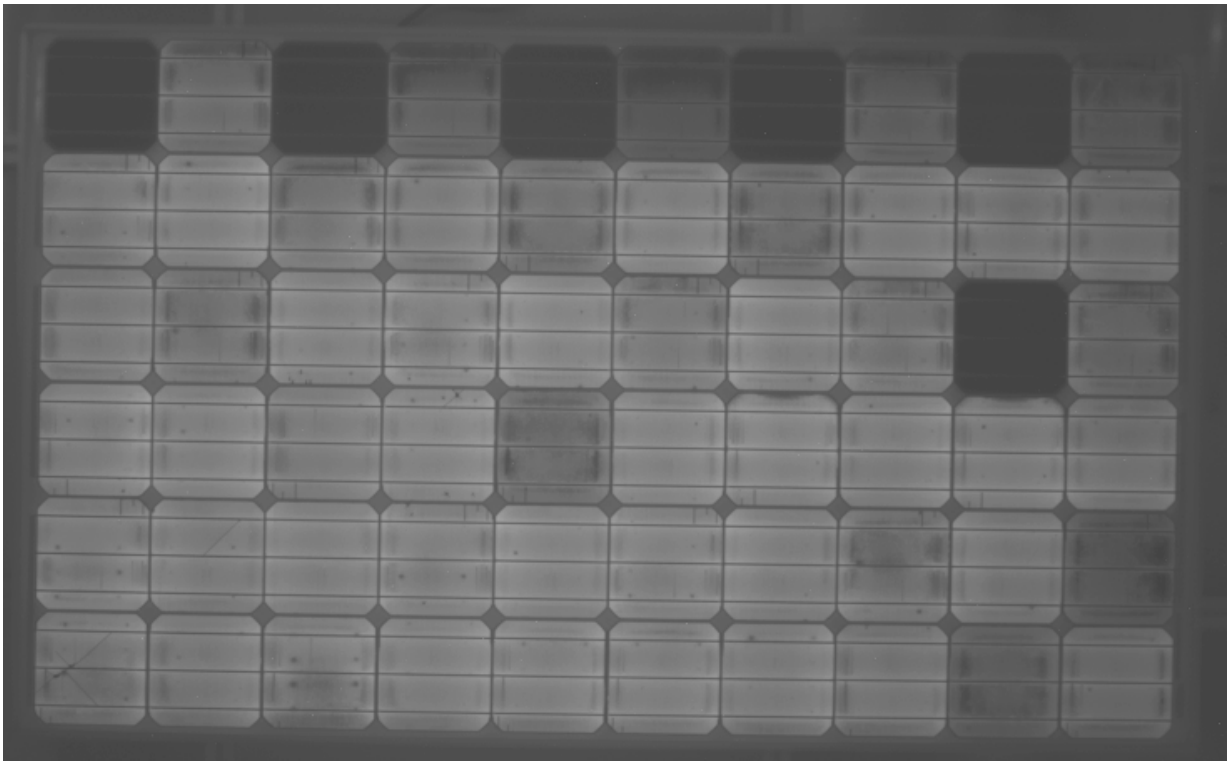
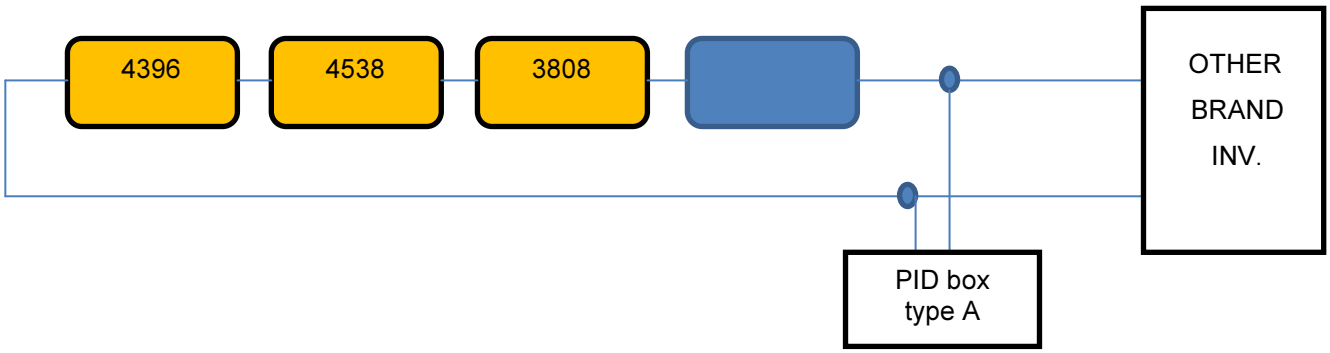


S/N	Configuration	Voc [V]	Pmax. [W]	Before regeneration		After regeneration			
				degradation %		Voc [V]	Pmax. [W]	degradation %	
				Voc [%]	Pmax. [%]				Pmax. [%]
4396	1-Test2	27,82	110,3	-26,4	-55	28,8	118,8	-23,8	-51,5
4538	1-Test2	25,04	87	-33,7	-64,5	26,44	95,37	-30,0	-61,1
3808	1-Test2	21,24	72,1	-43,8	-70,6	24,64	94,21	-34,8	-61,5

Diagram setup of configuration 1, test 2:



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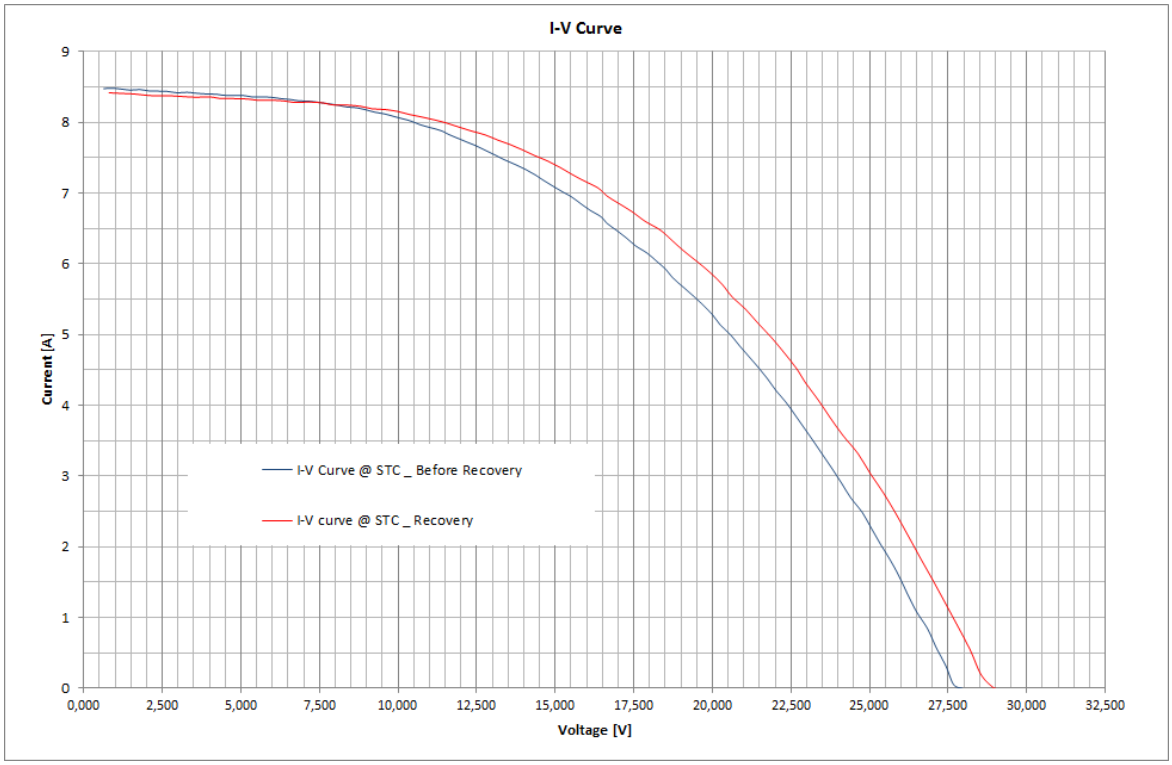

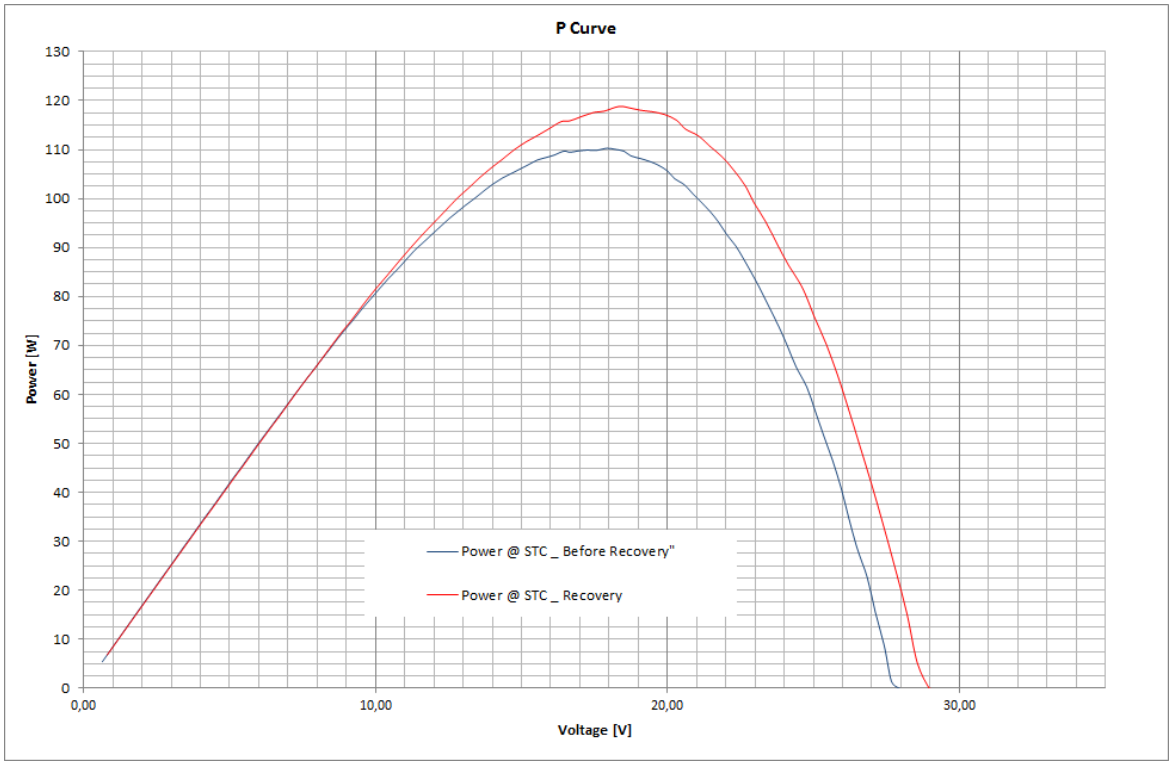

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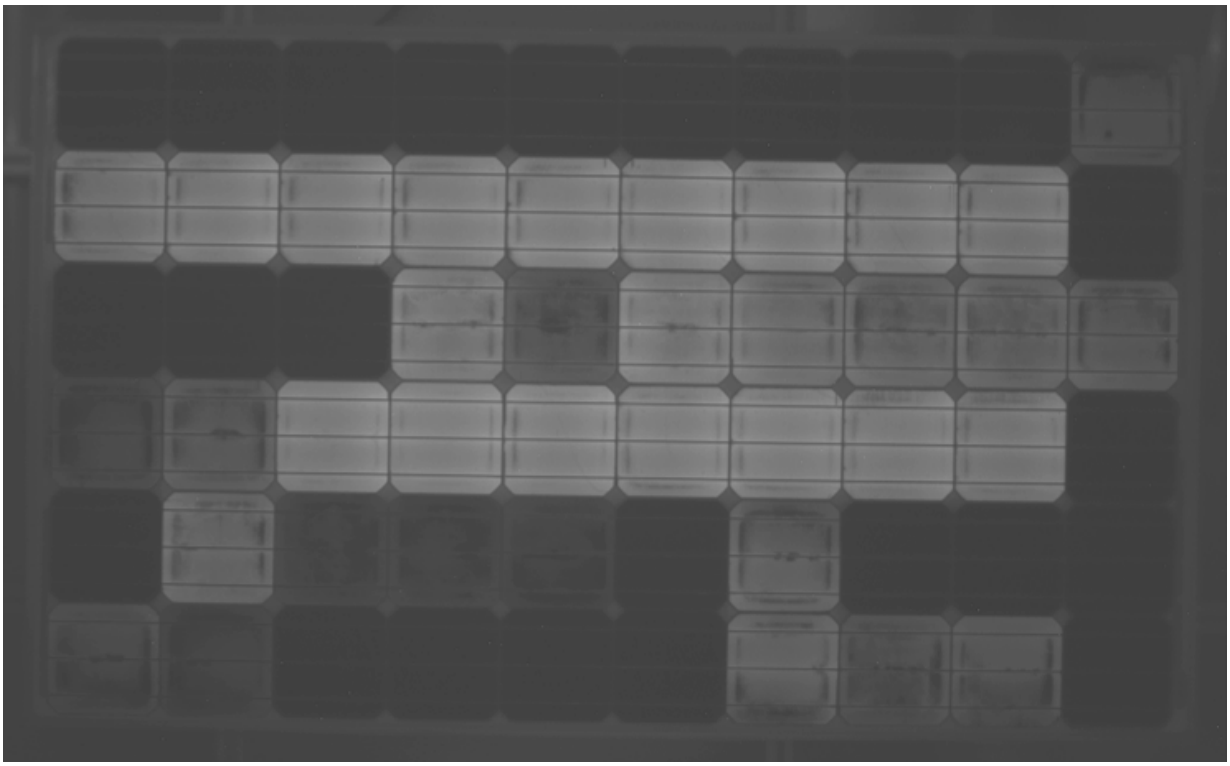

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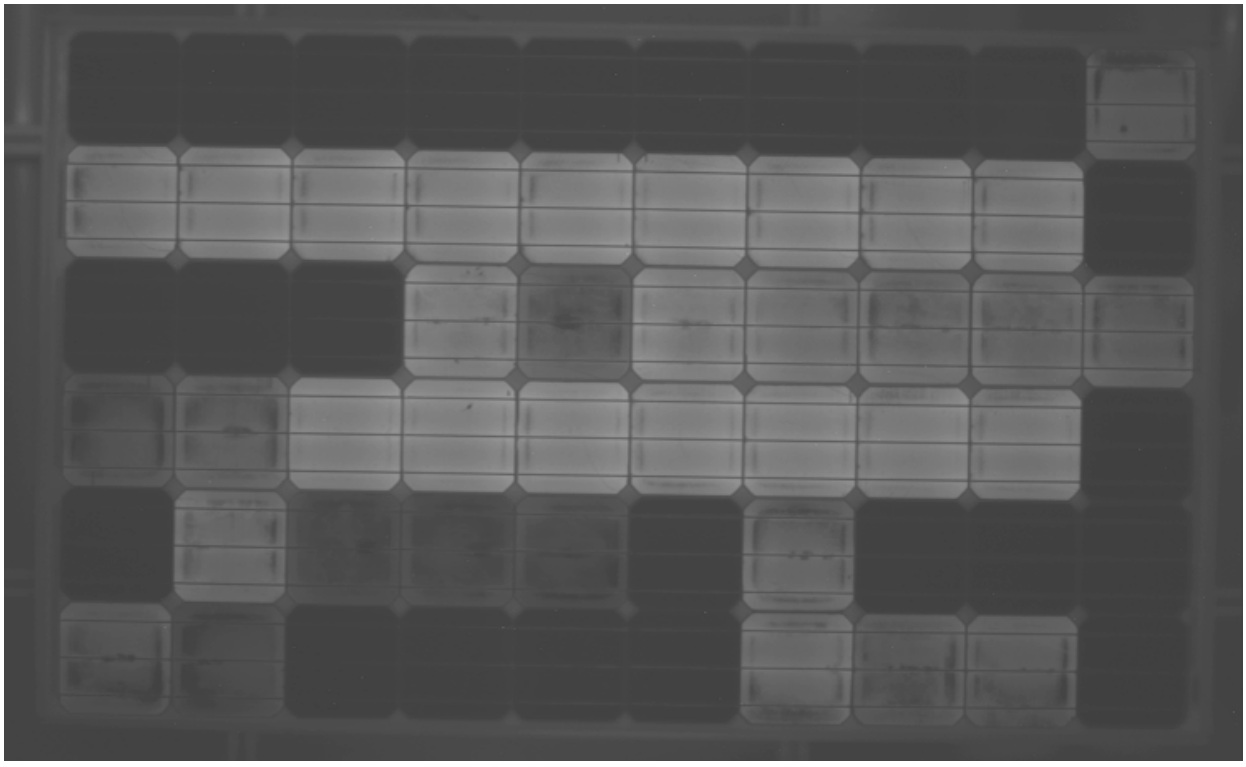

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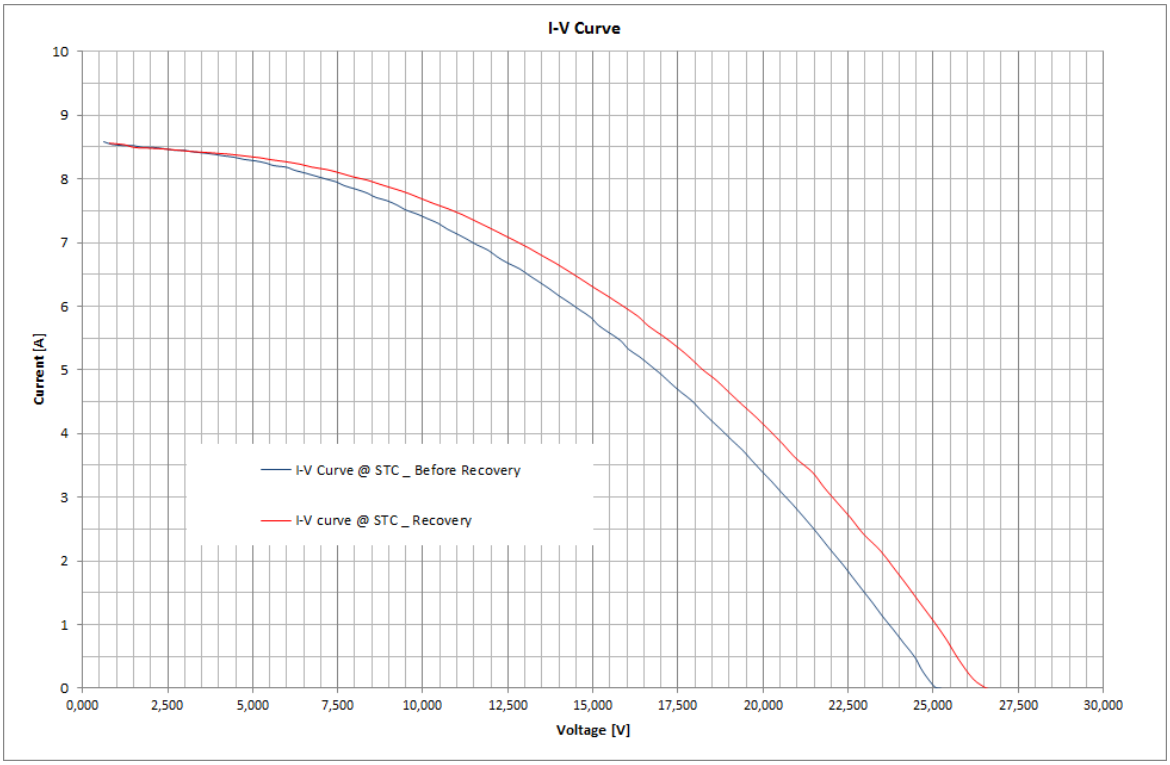

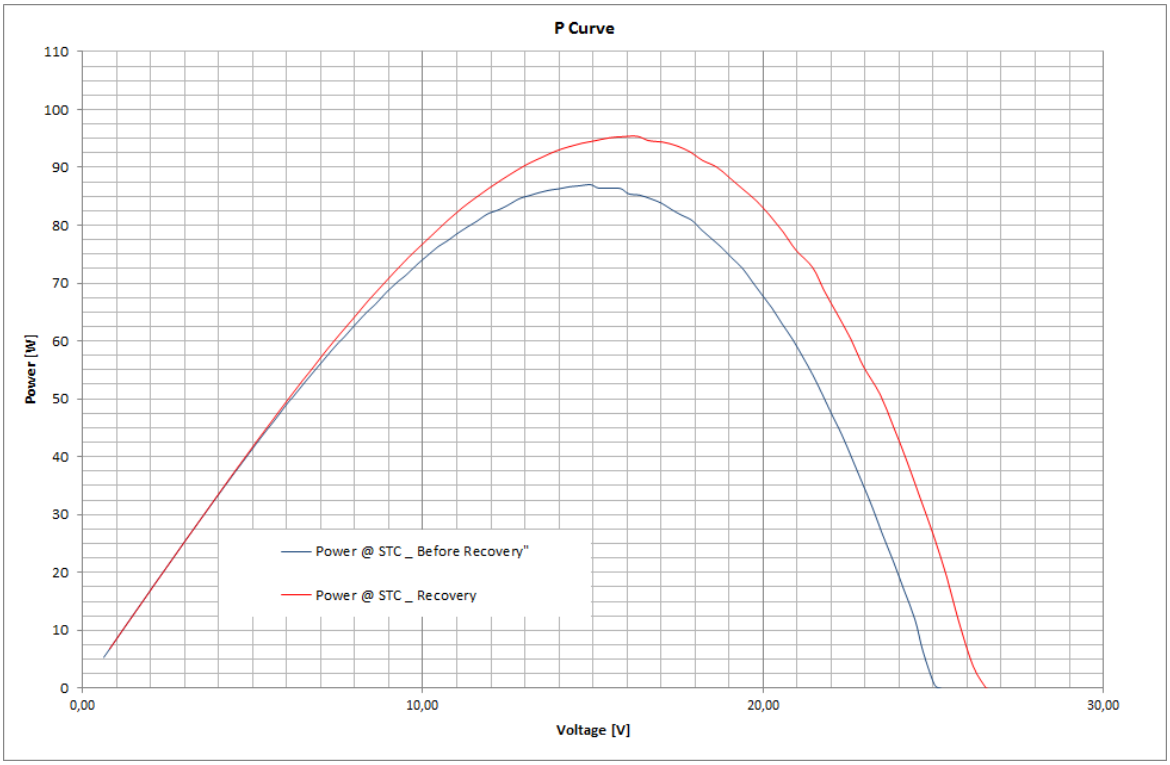

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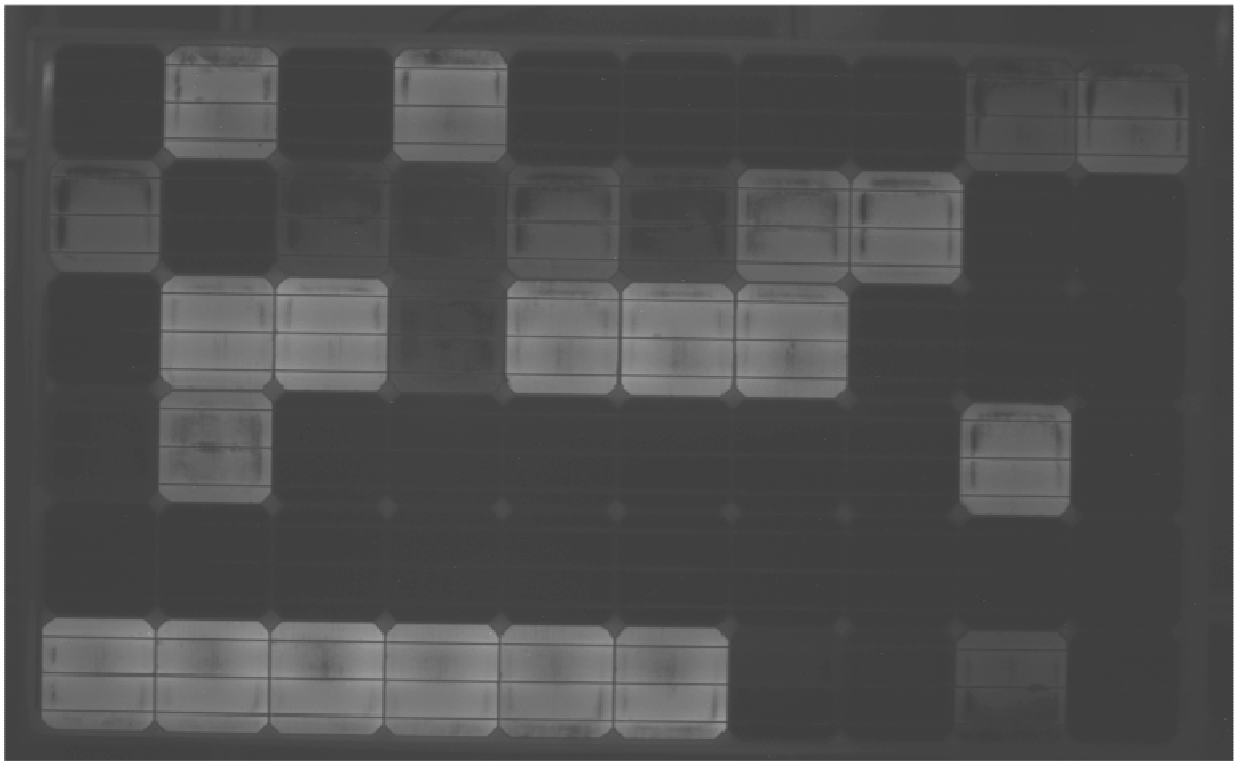
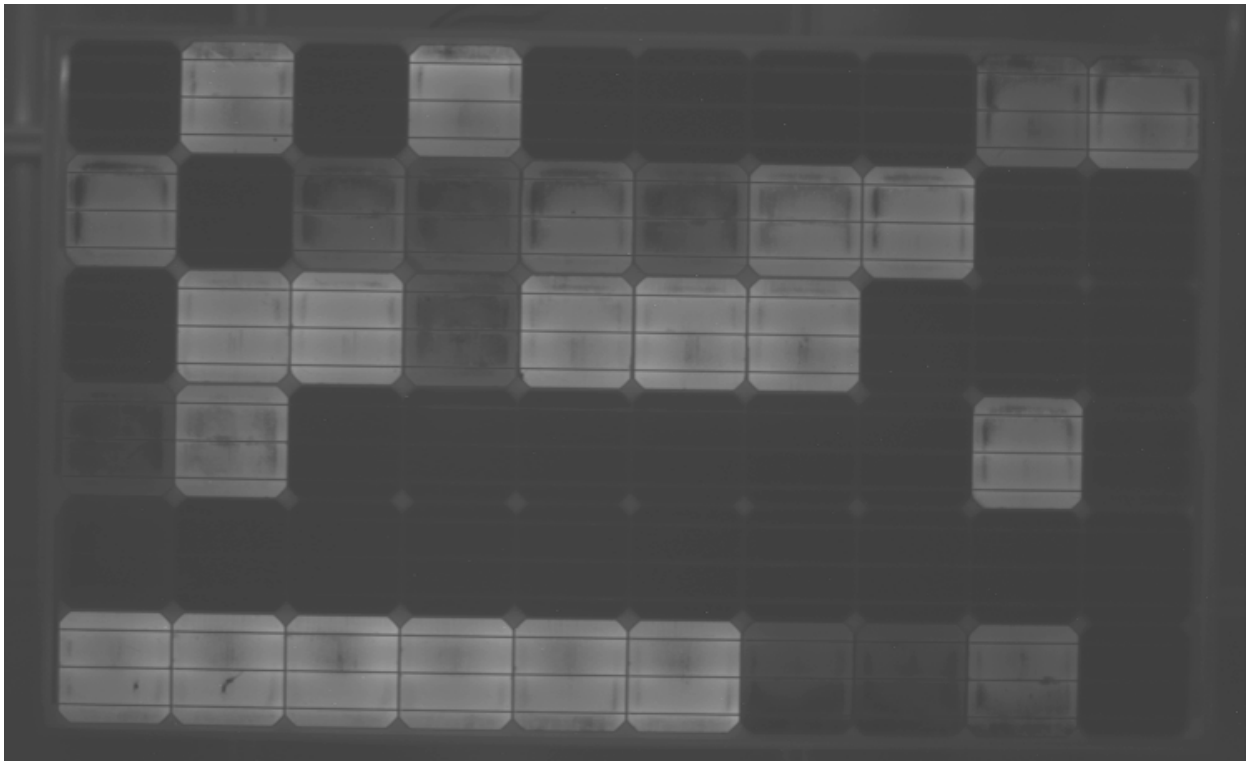


After:



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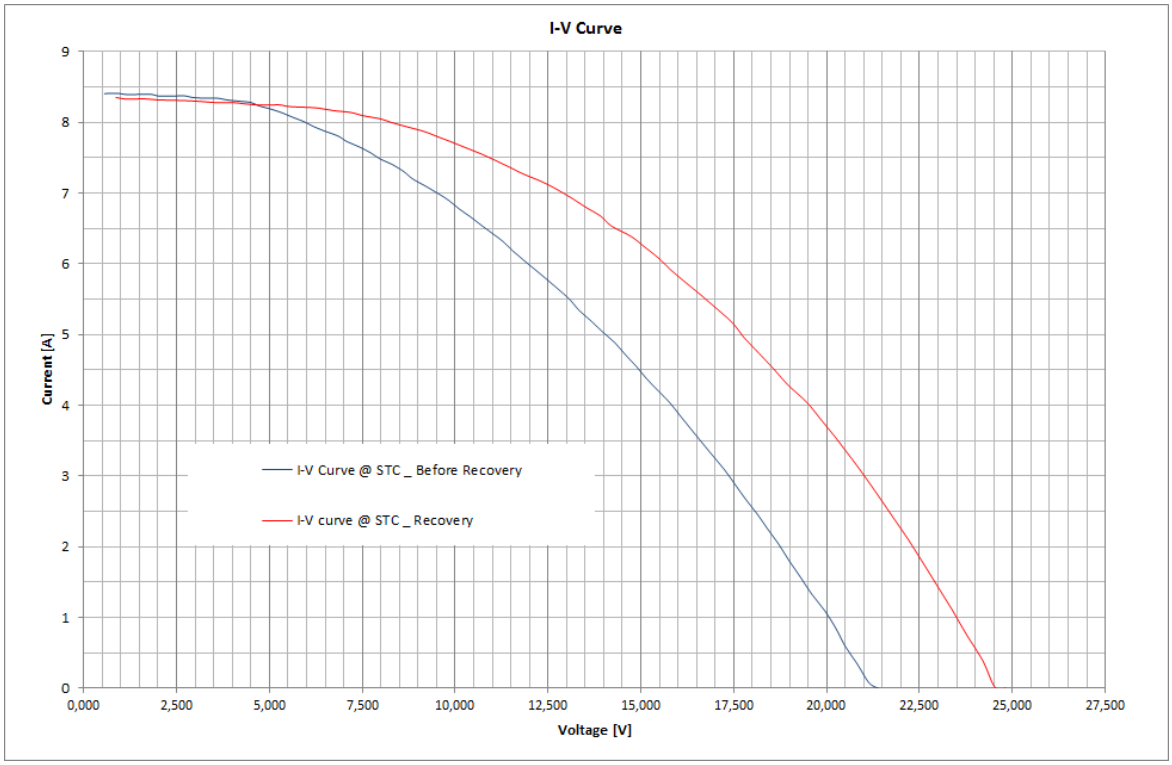

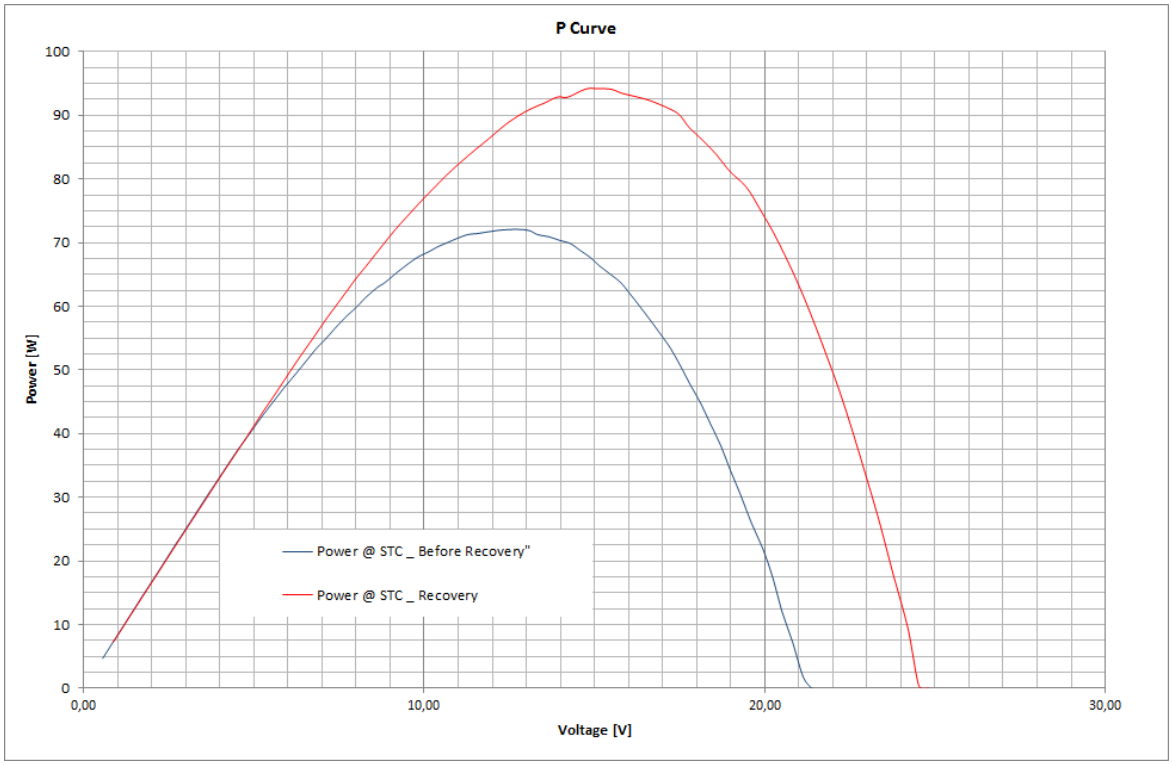

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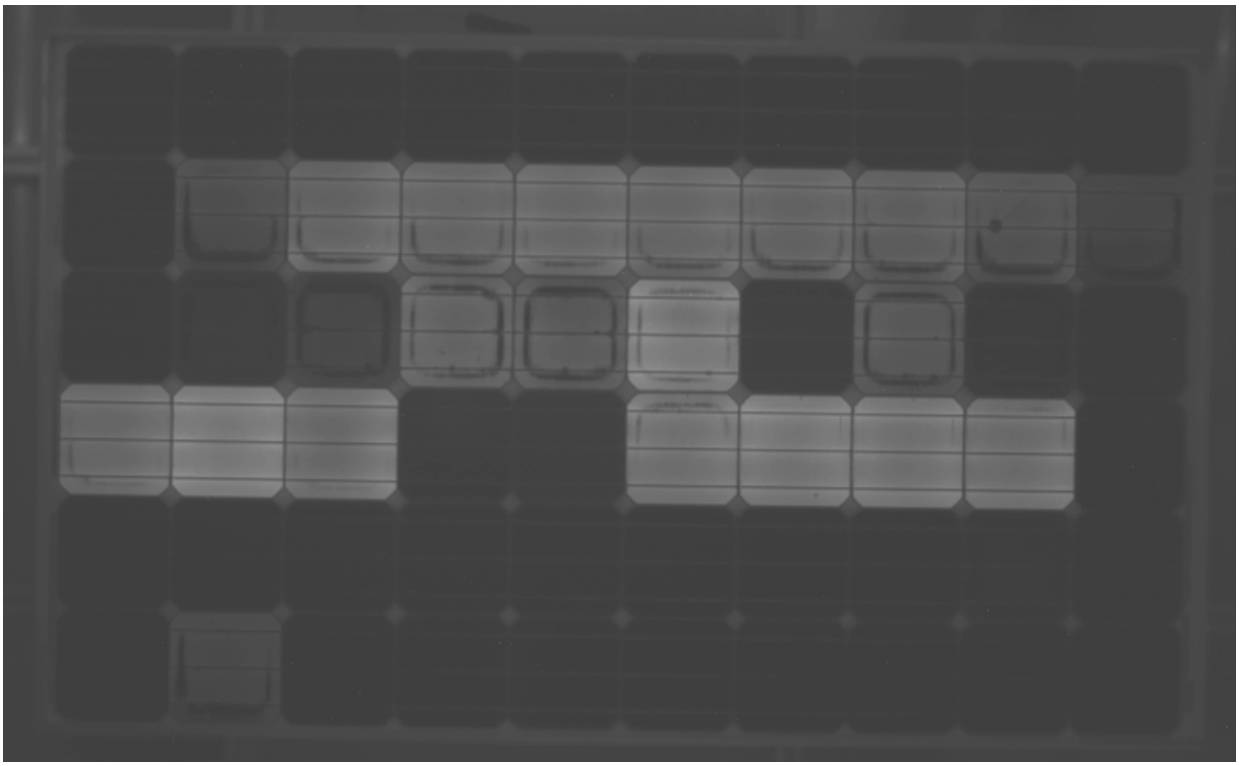

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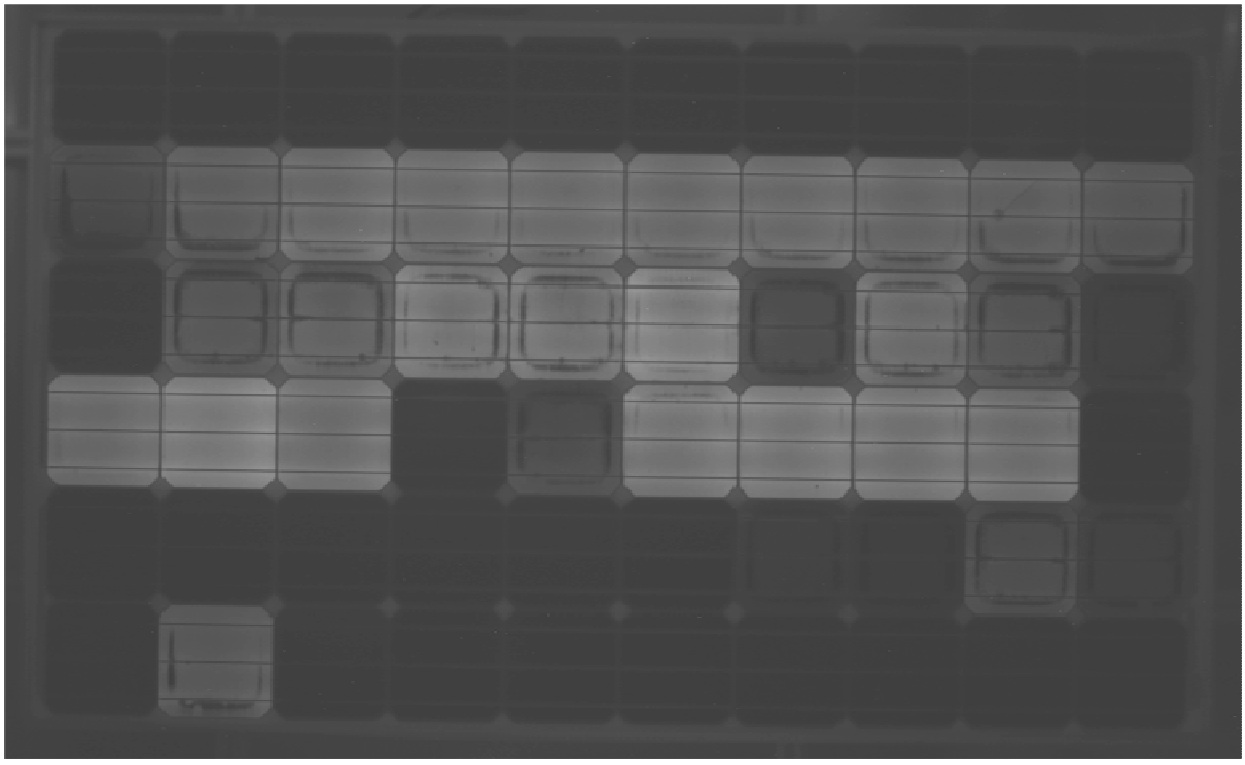
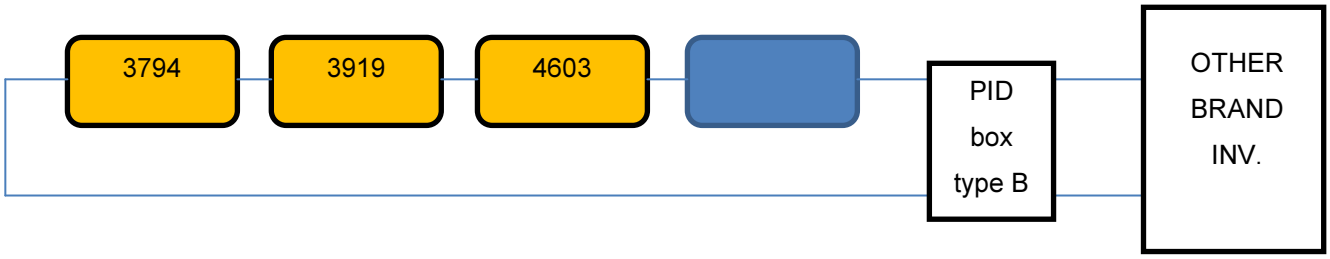


S/N	Configuration	Voc [V]	Pmax. [W]	Before regeneration		After regeneration			
				degradation %		Voc [V]	Pmax. [W]	degradation %	
				Voc [%]	Pmax. [%]			Voc [%]	Pmax. [%]
3794	2-Test2	20,91	61,1	-44,7	-75,1	29,79	119,5	-21,1	-51,2
3919	2-Test2	26,9	86,7	-28,8	-64,6	35,66	190,3	-5,6	-22,3
4603	2-Test2	26,34	92	-30,3	-62,4	34,2	152,8	-9,5	-37,6

Diagram setup of configuration 2, test 2:



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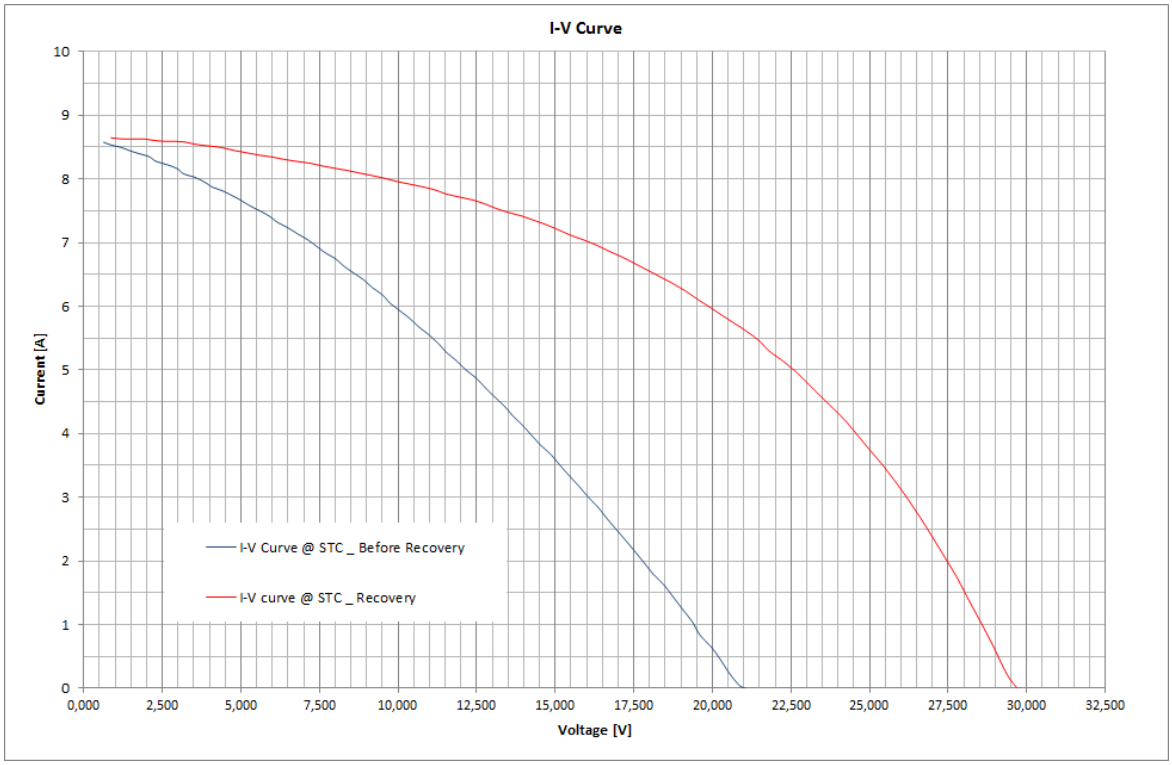

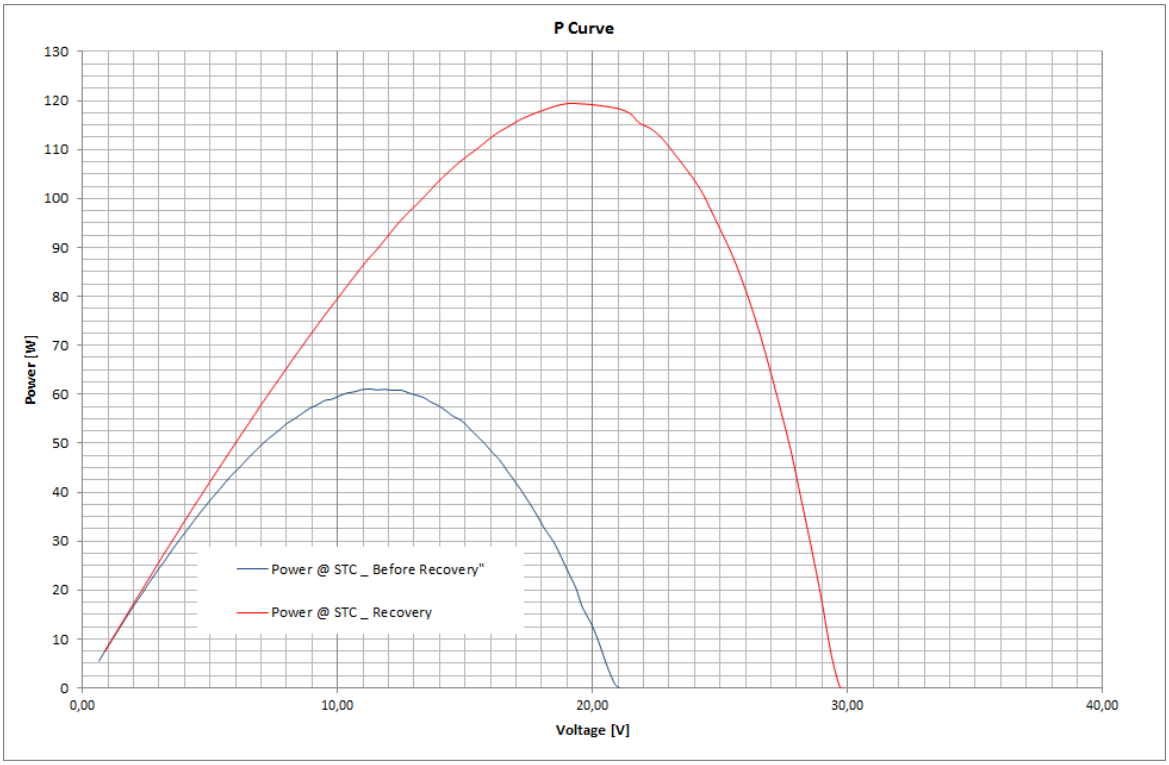

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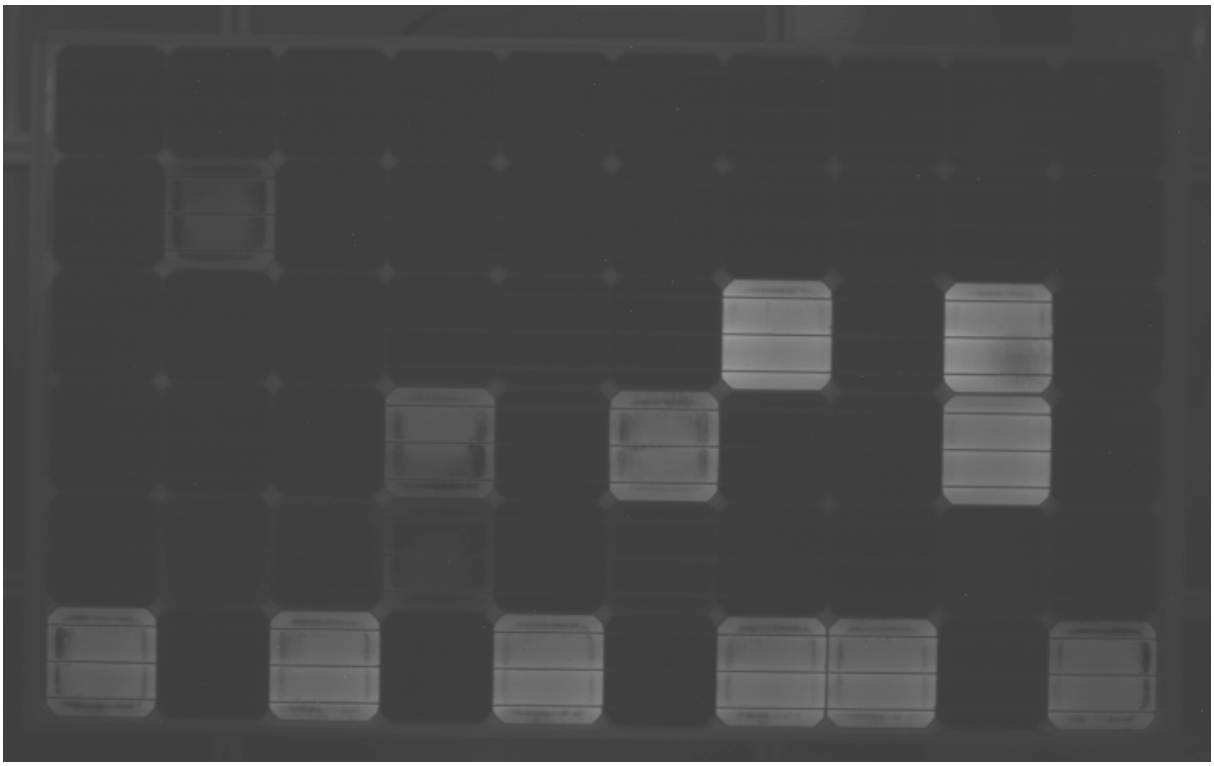

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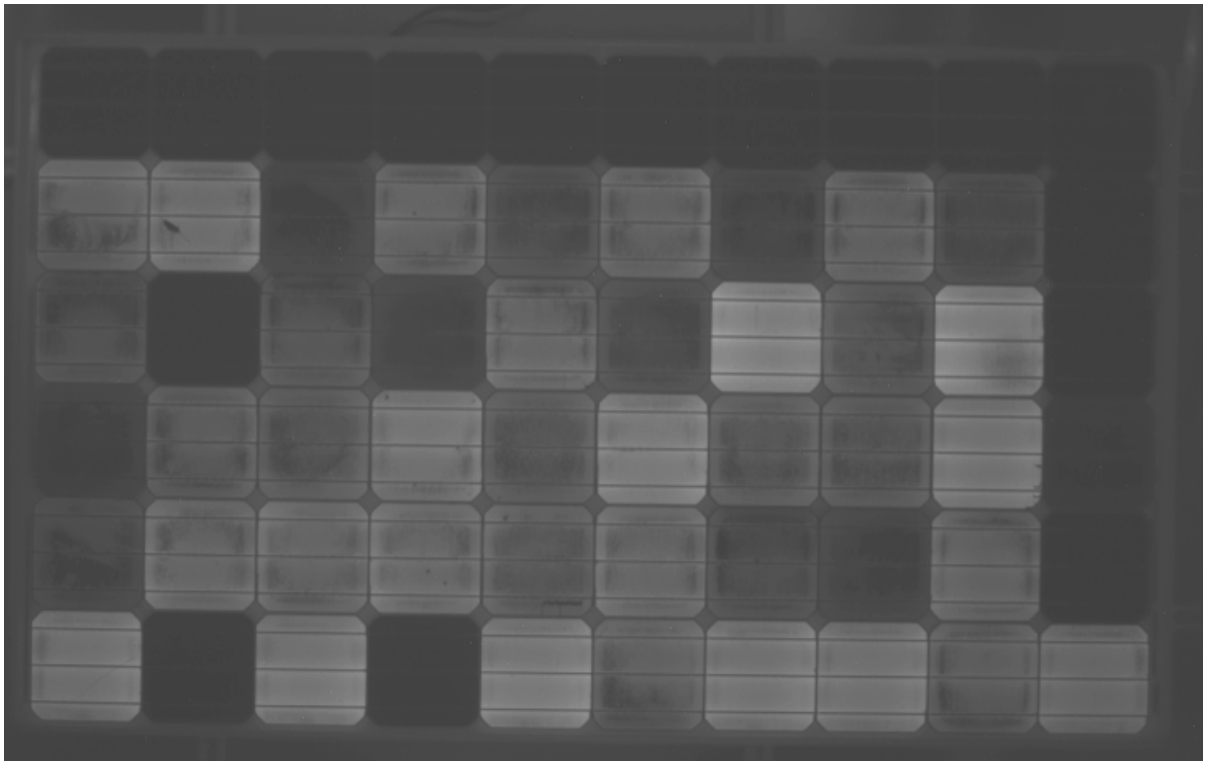

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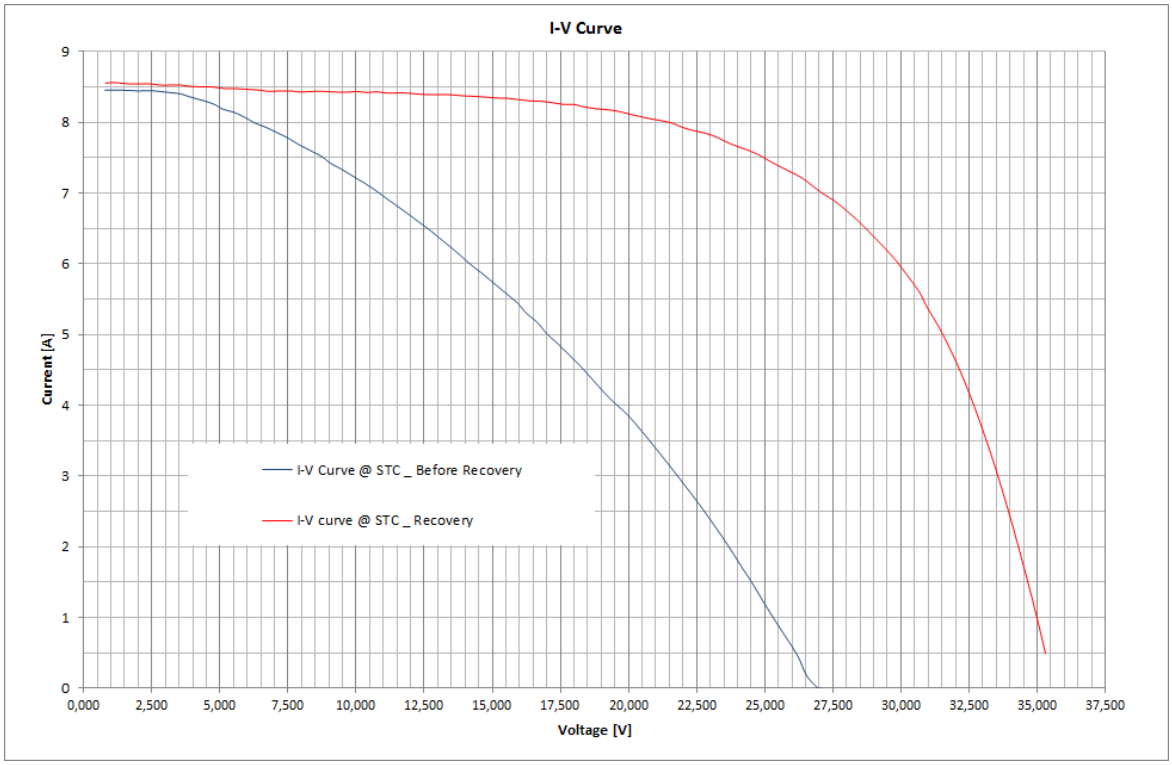

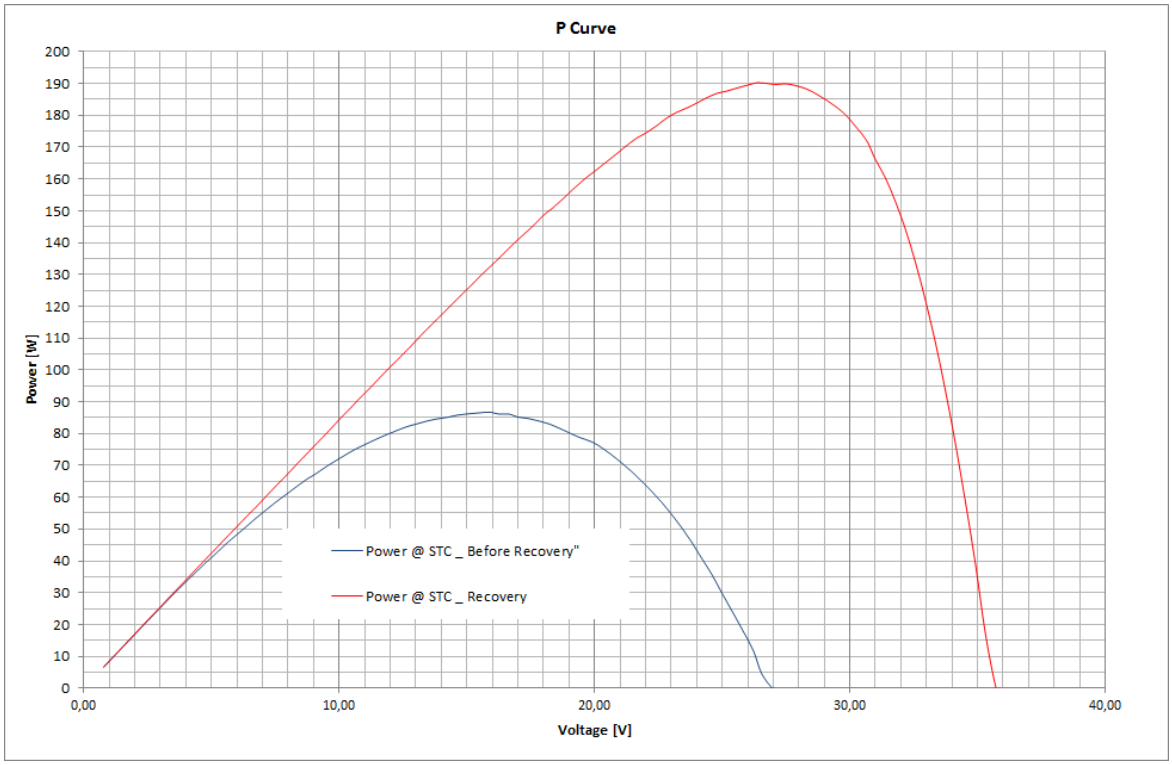

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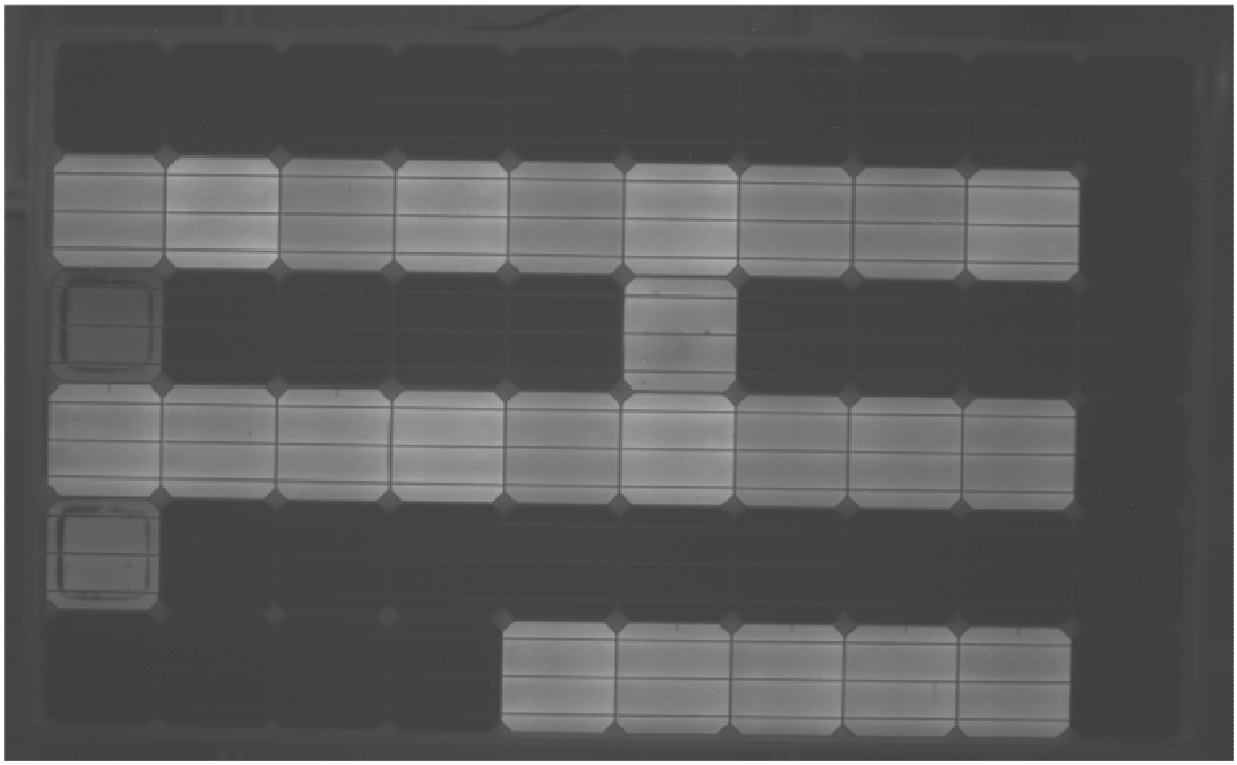

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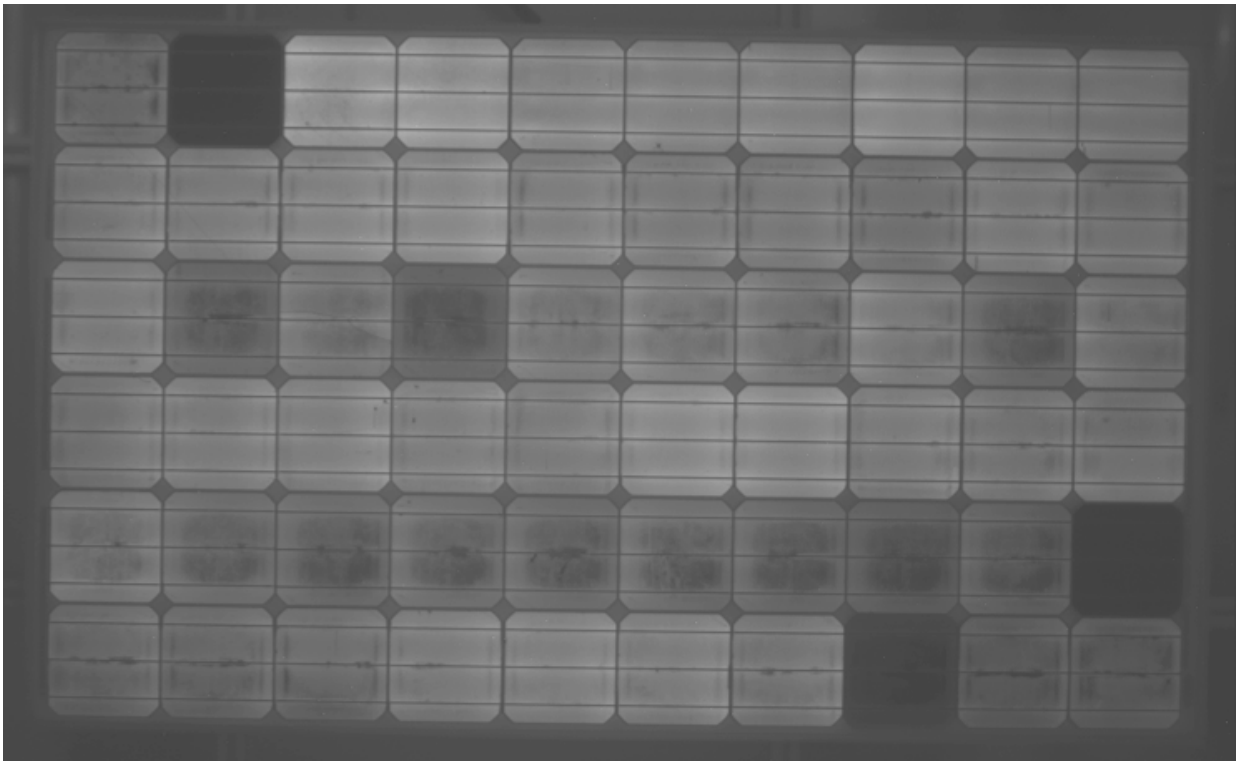

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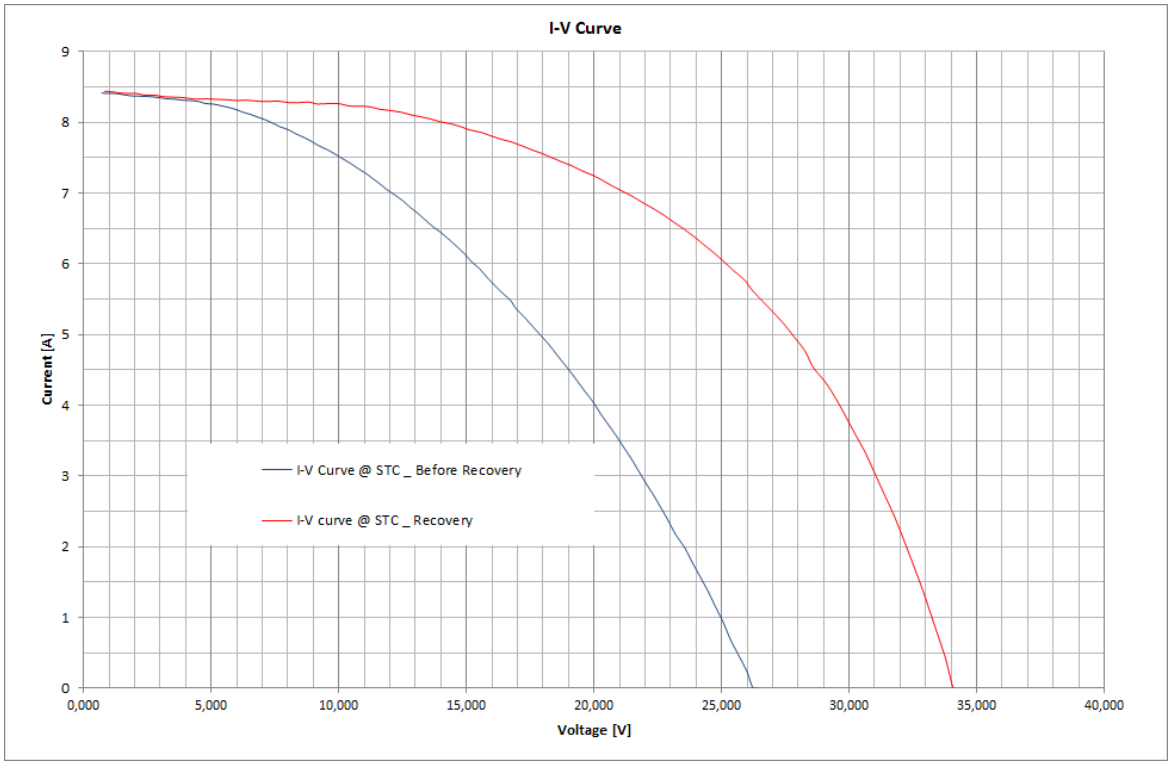

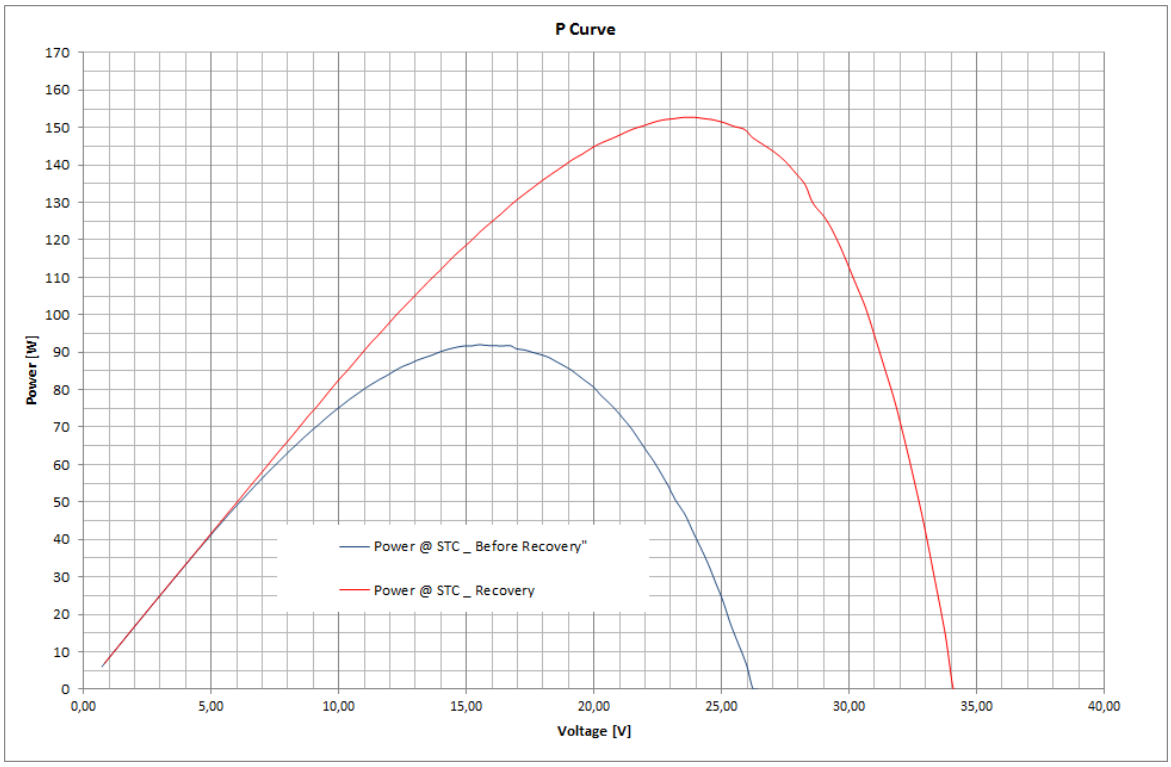

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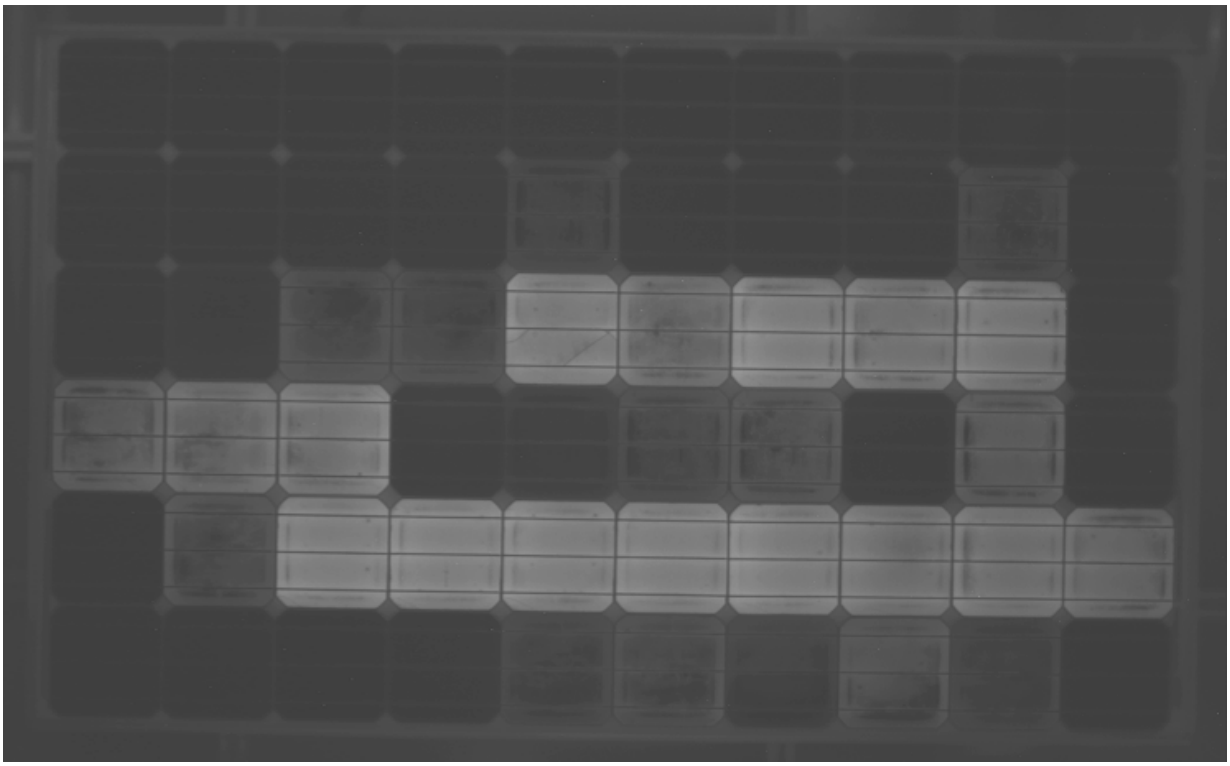

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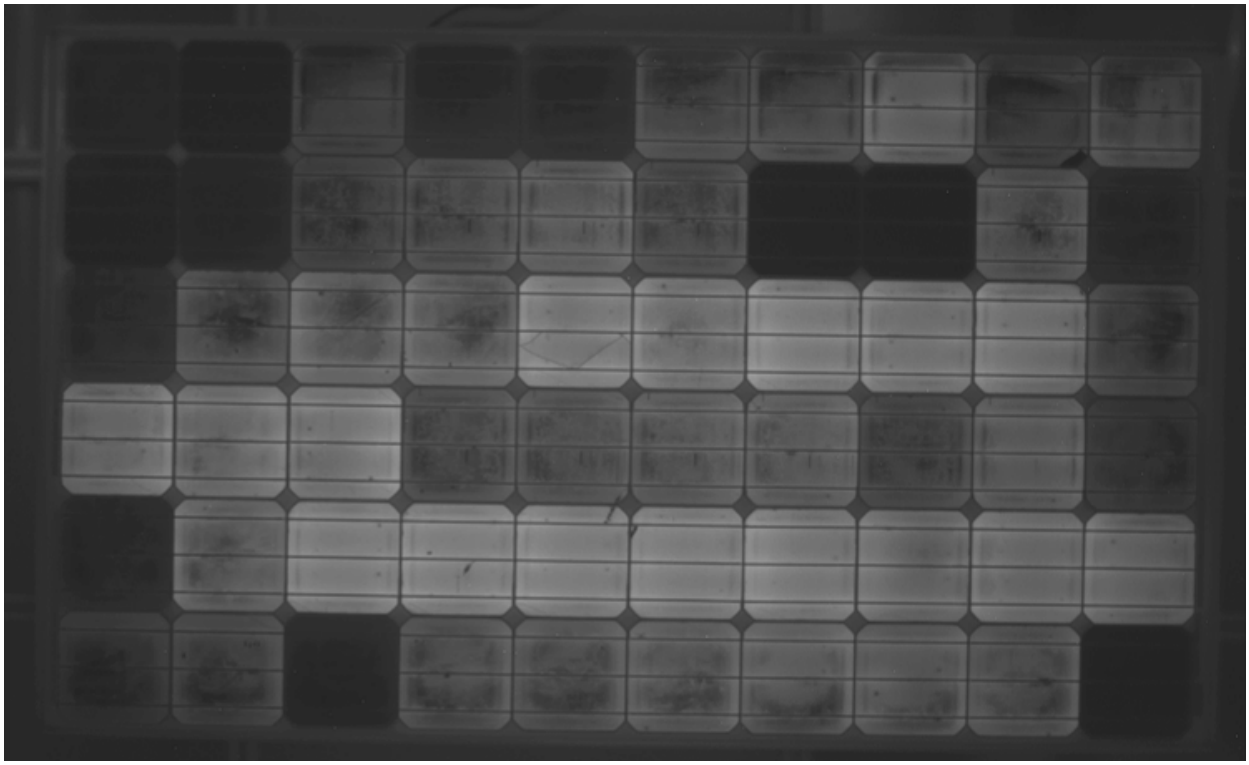
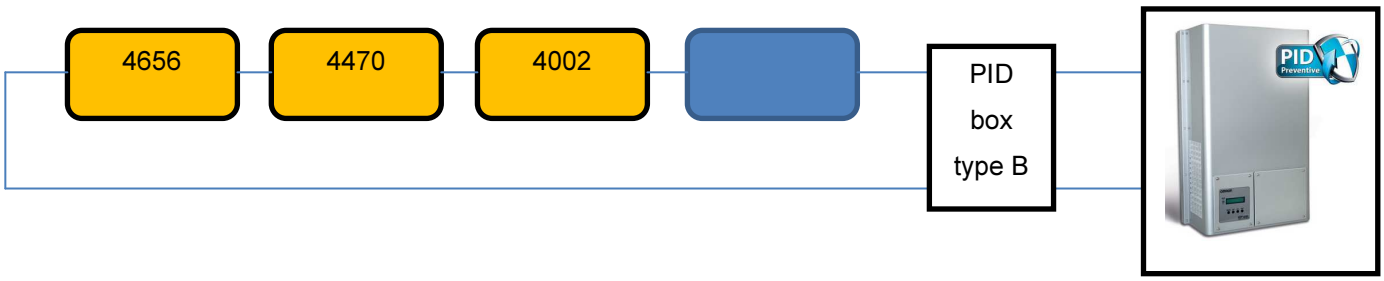


S/N	Configuration	Voc [V]	Pmax. [W]	Before regeneration		After regeneration			
				degradation %		Voc [V]	Pmax. [W]	degradation %	
				Voc [%]	Pmax. [%]			Voc [%]	Pmax. [%]
4656	3-Test2	20,19	55,3	-46,6	-77,4	34,42	186,3	-8,9	-24,0
4470	3-Test2	16,59	44,6	-56,1	-81,8	28,11	118,6	-25,6	-51,6
4002	3-Test2	24,46	80,2	-35,3	-67,3	34,95	168,0	-7,5	-31,4

Diagram setup of configuration 3, test 2:



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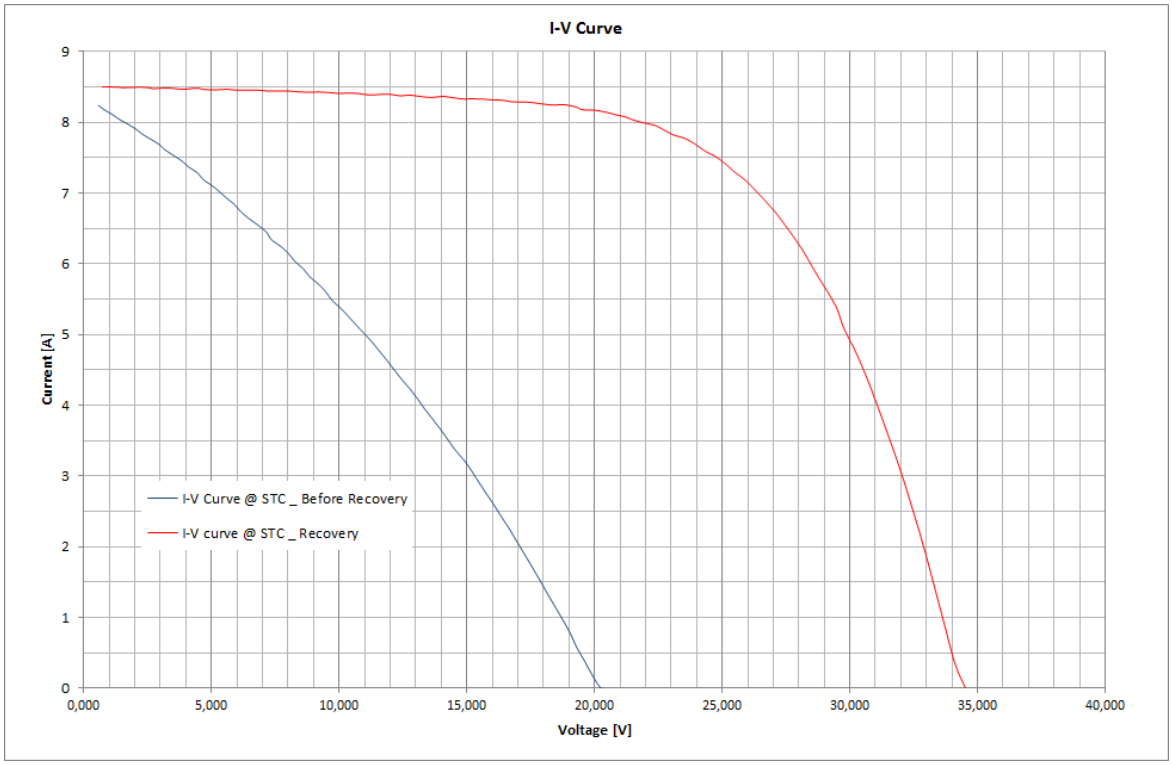

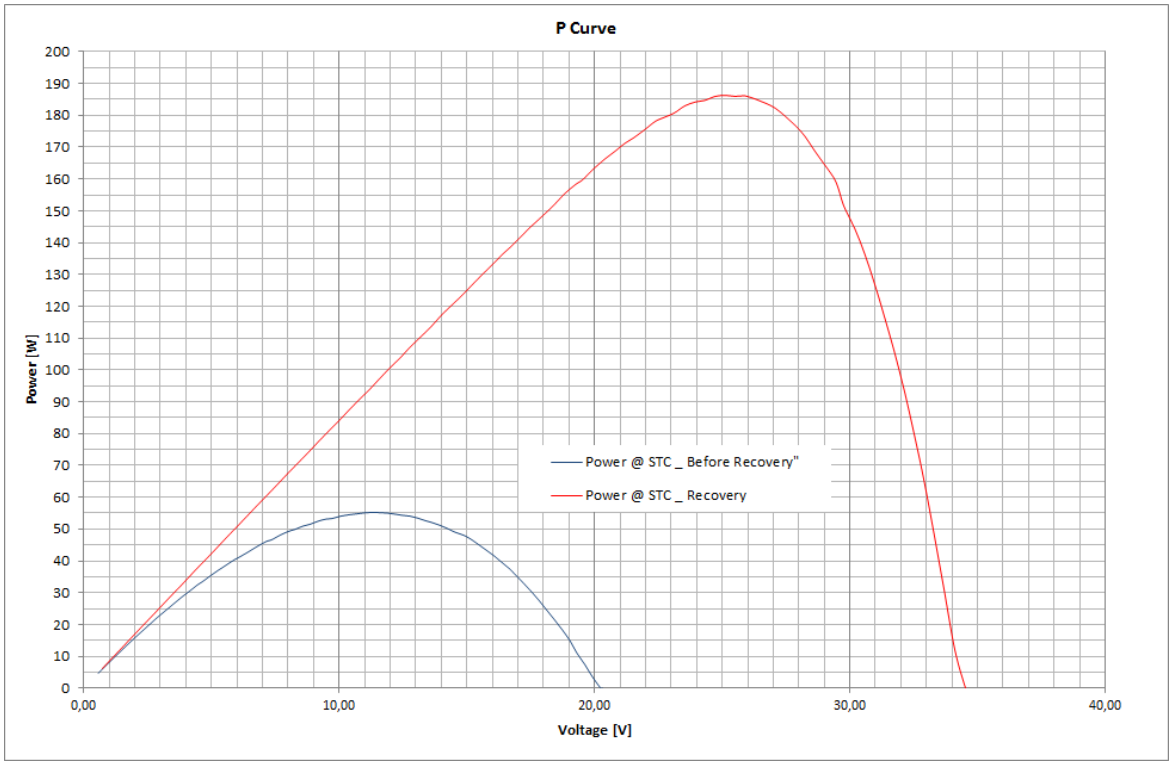

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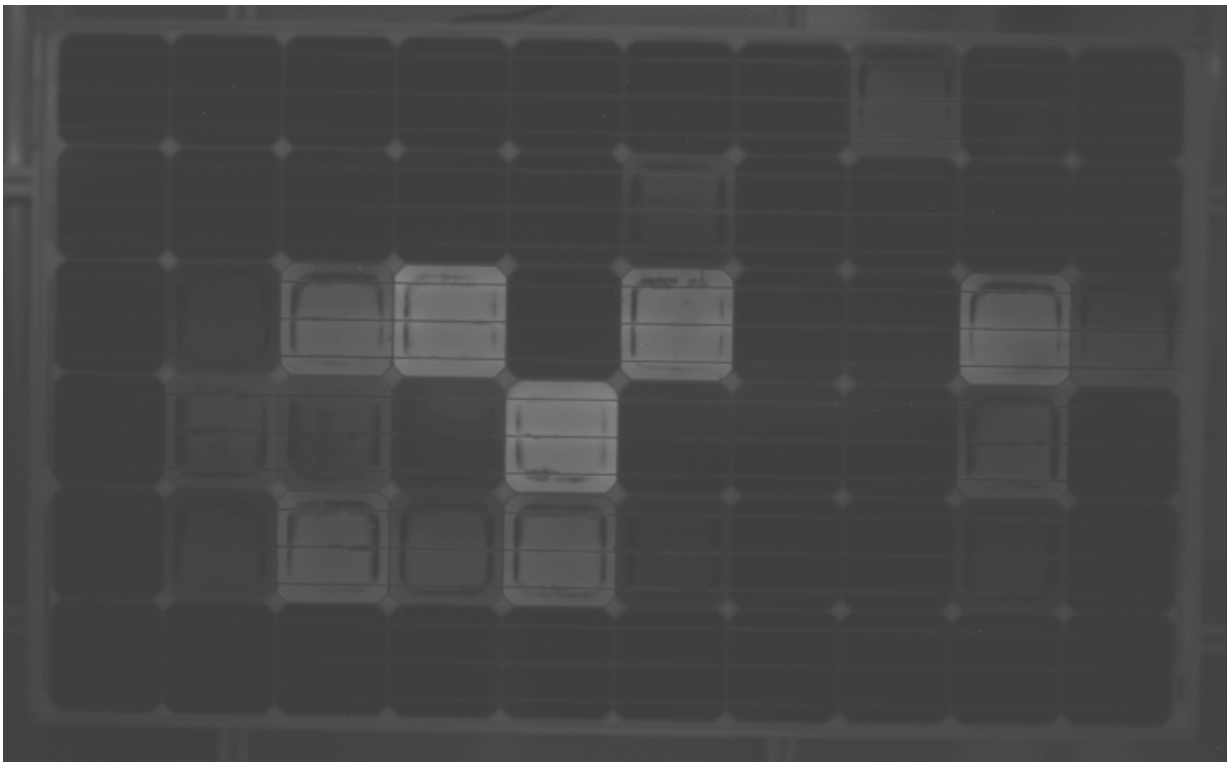

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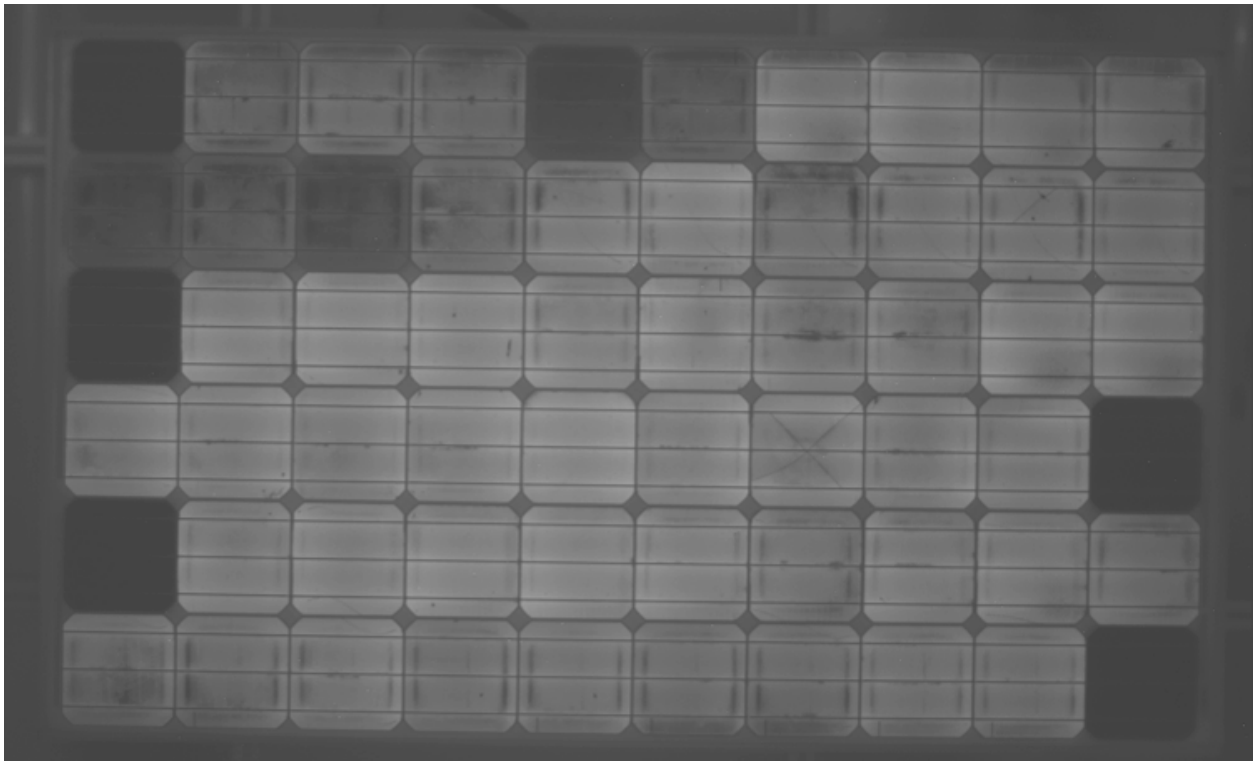

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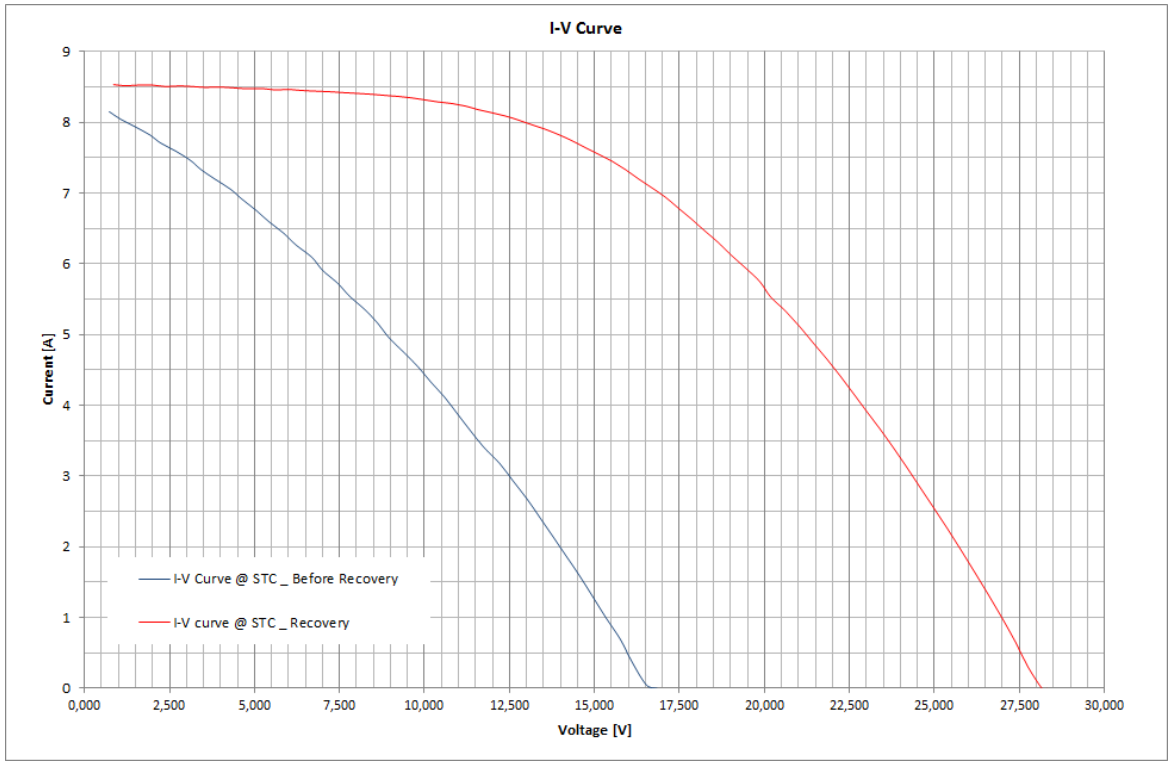

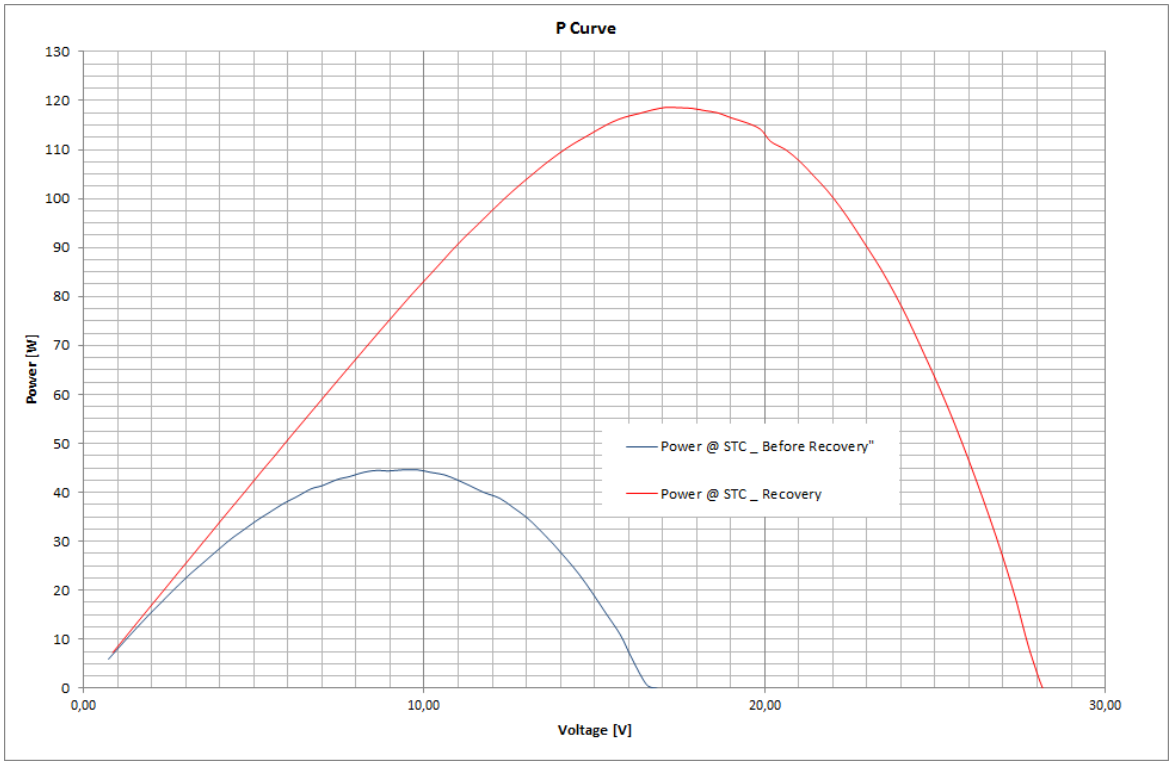

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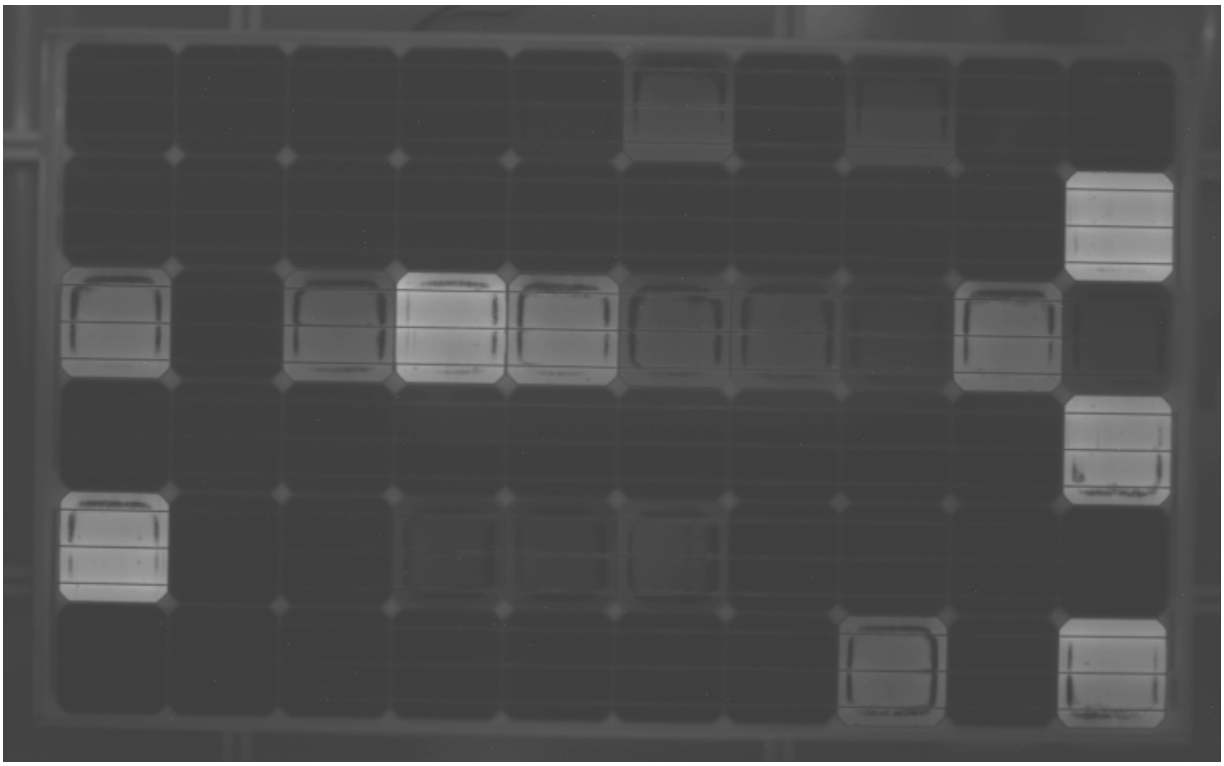

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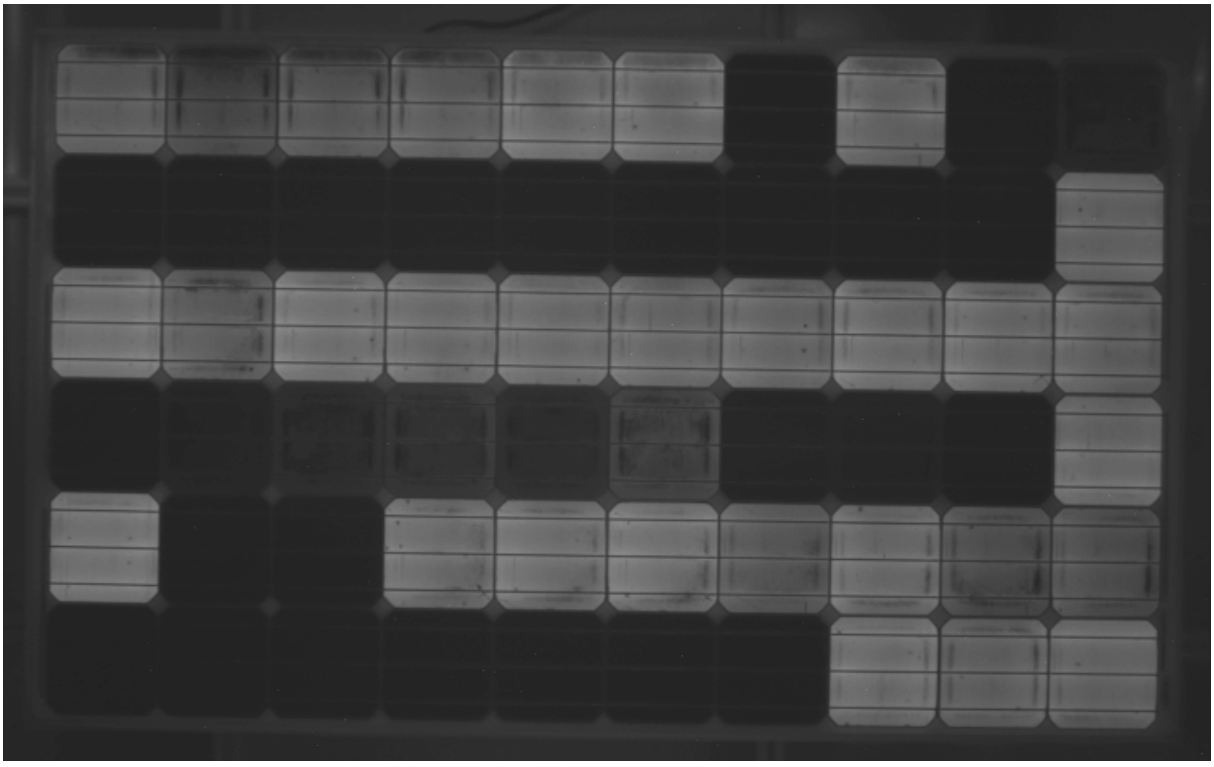

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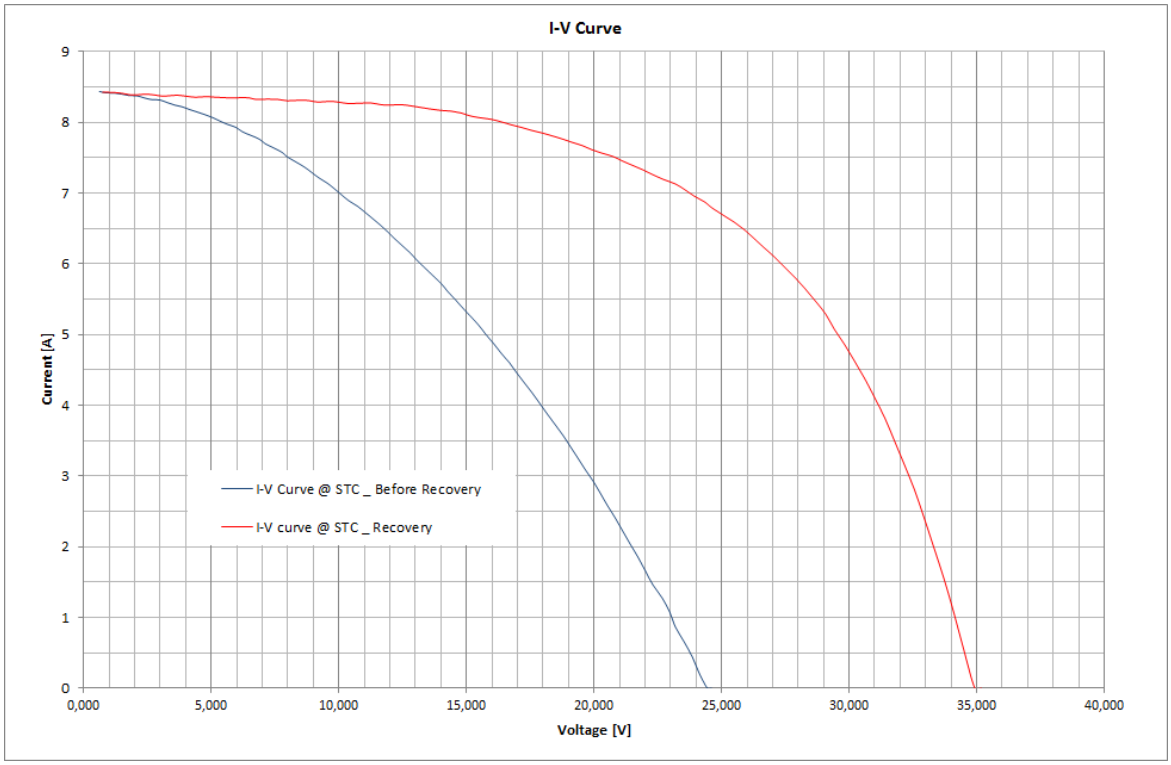

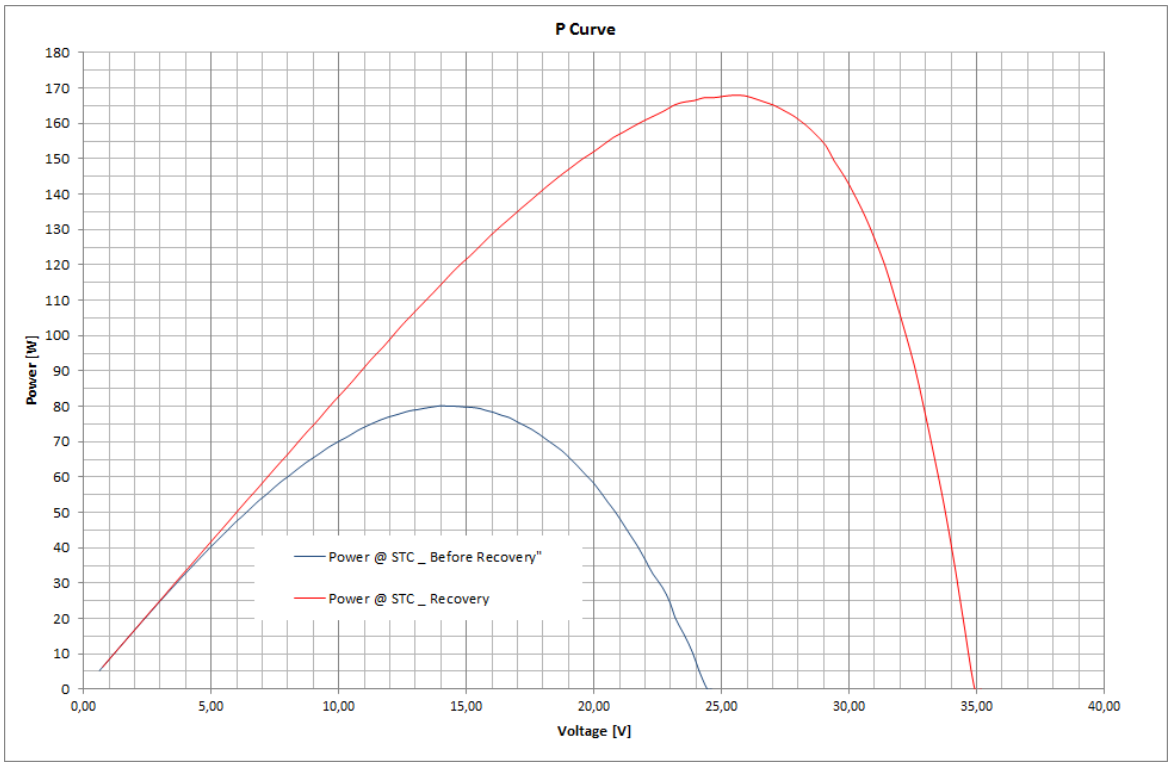

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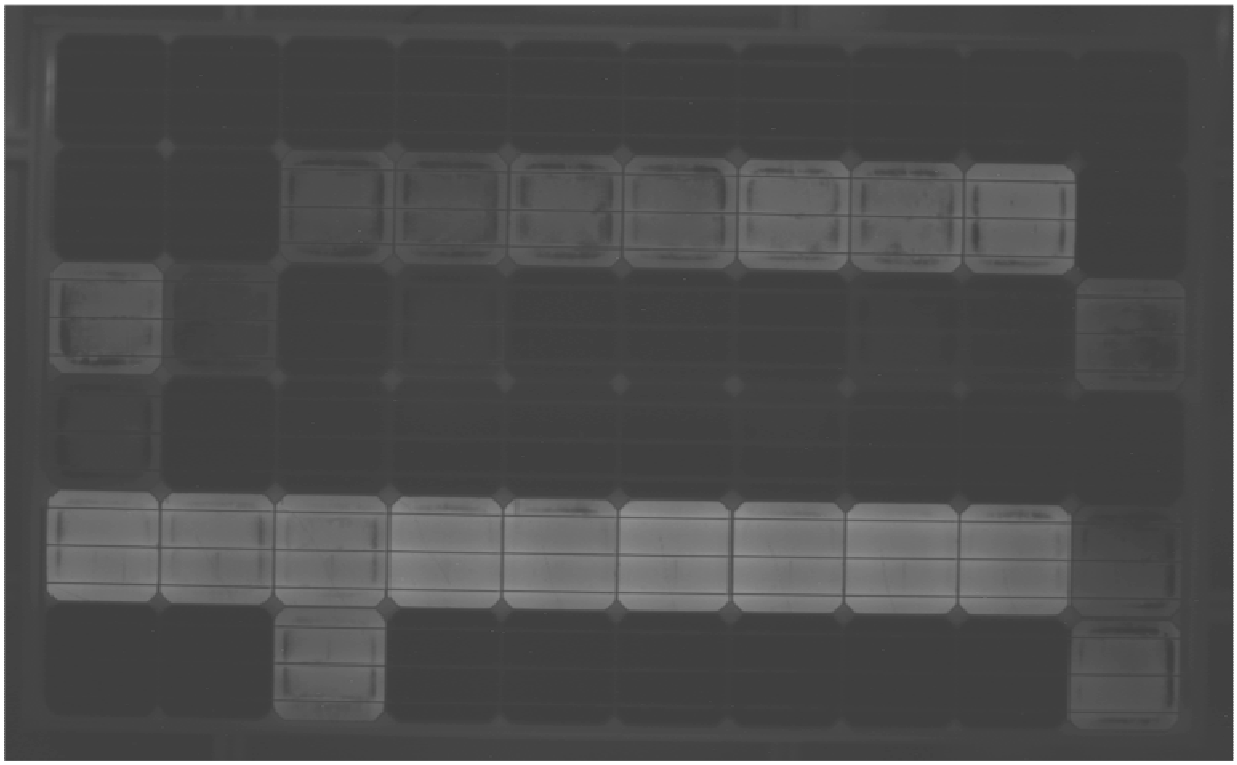

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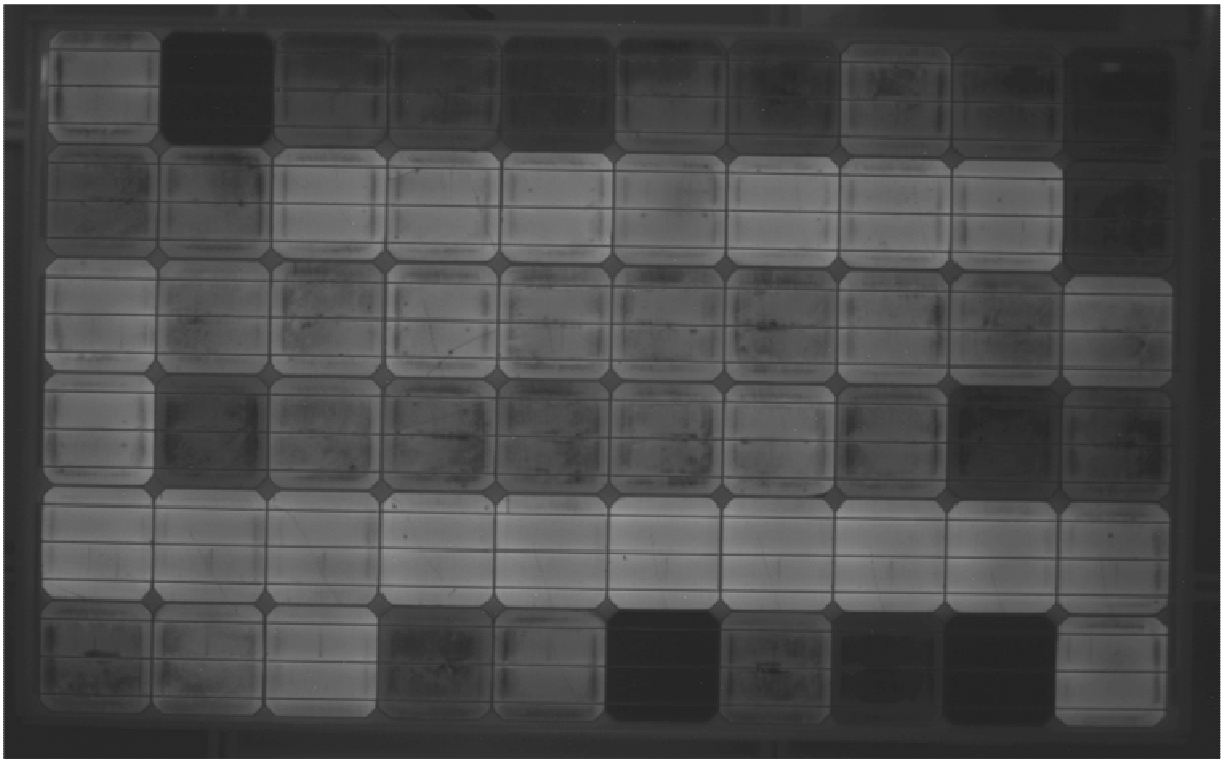


End of Test Report

APPENDIX 1

INDEX

Day by day values for every panel under test

TÜVRheinland®

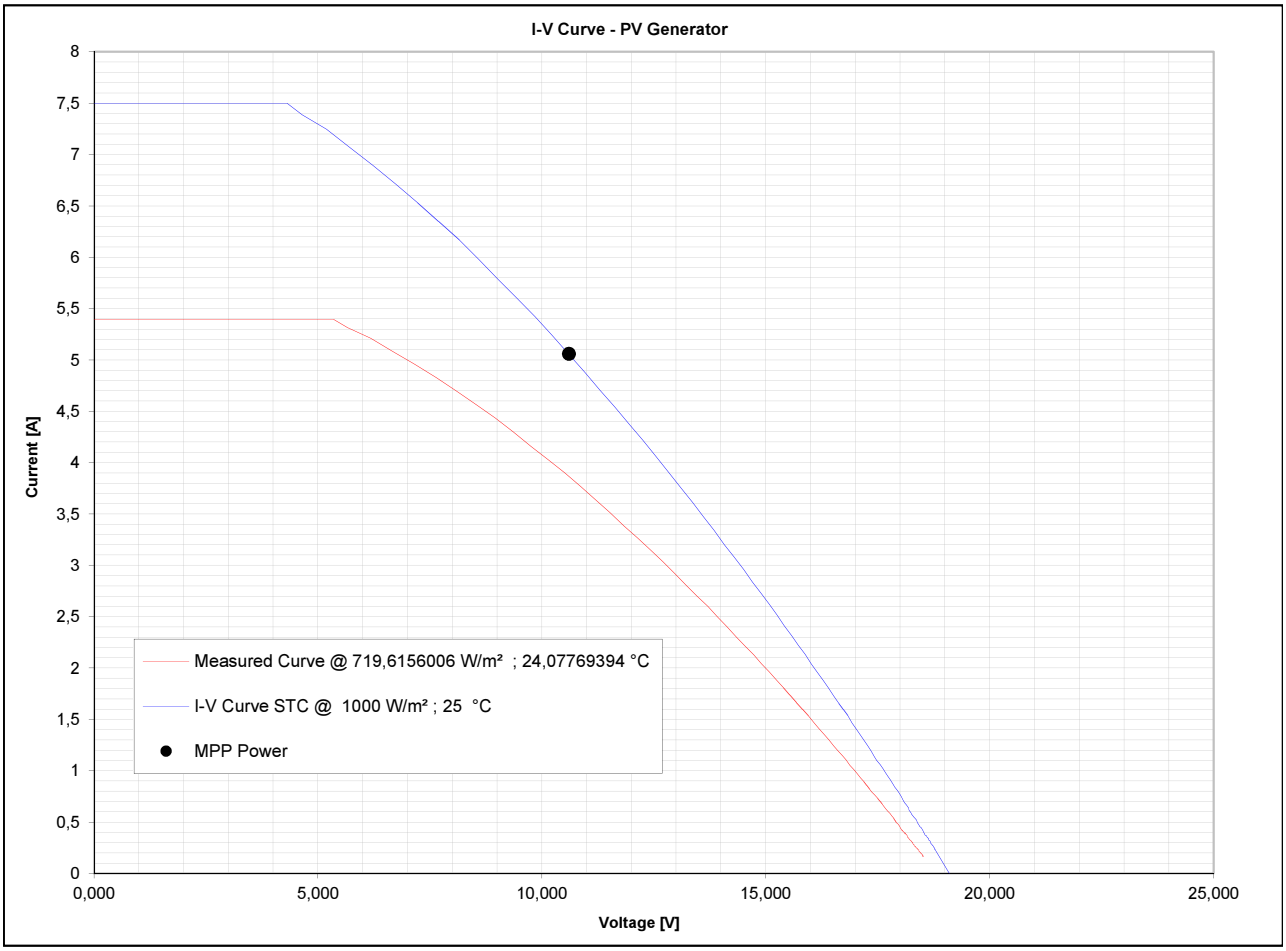
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **17:11:24**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3794
PV Plant		**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	719,6156006
Module Temp. (PT1000)	[°C]	24,07769394
MPP Power	[W]	41,00
MPP Voltage	[V]	10,52
MPP Current	[A]	3,90
OC Voltage	[V]	18,79
SC Current	[A]	5,39
Fill factor	[%]	40,44

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**53,62**
MPP Voltage	[V]	10,60
MPP Current	[A]	5,06
OC Voltage	[V]	19,10
SC Current	[A]	7,50
Fill factor	[%]	37,43



Peak power deviation @ STC	**-78,11%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

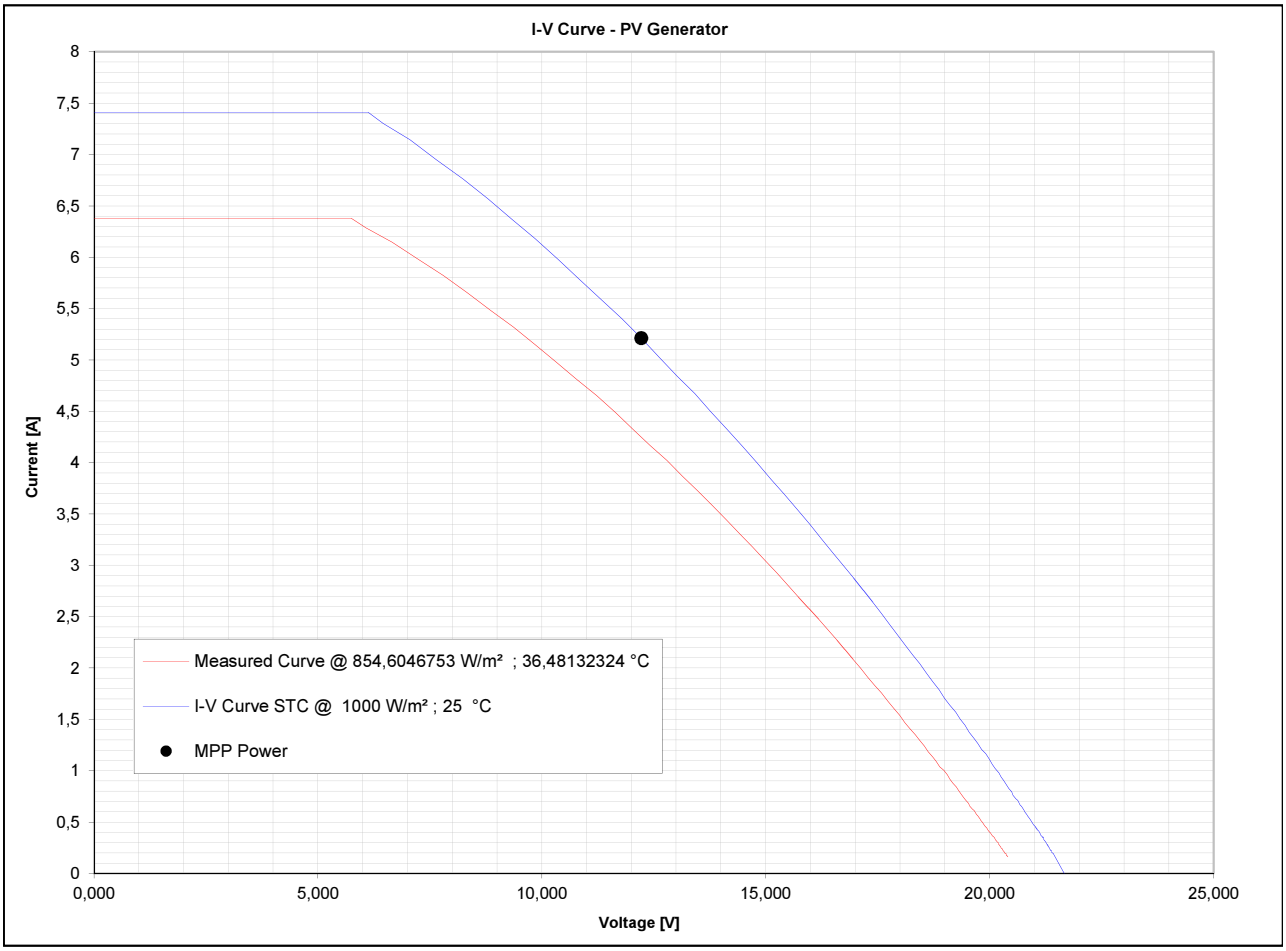
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:52:56**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3794
PV Plant		**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	854,6046753
Module Temp. (PT1000)	[°C]	36,48132324
MPP Power	[W]	52,26
MPP Voltage	[V]	11,65
MPP Current	[A]	4,49
OC Voltage	[V]	20,63
SC Current	[A]	6,38
Fill factor	[%]	39,71

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**63,71**
MPP Voltage	[V]	12,22
MPP Current	[A]	5,21
OC Voltage	[V]	21,67
SC Current	[A]	7,41
Fill factor	[%]	39,67



Peak power deviation @ STC	**-74,00%**
Peak power deviation @ STC considering dust	**-**

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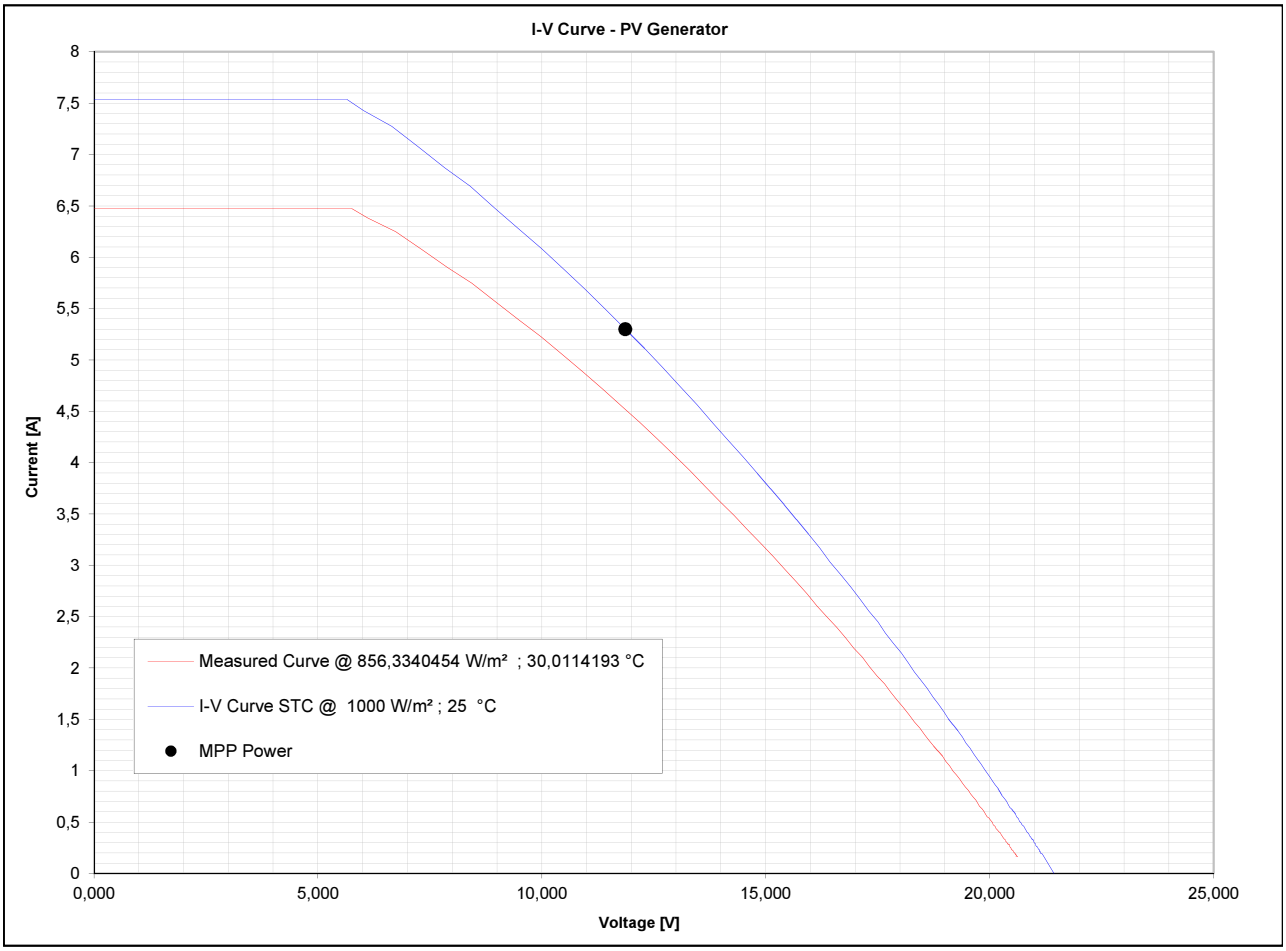
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:53:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3794
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	856,3340454
Module Temp. (PT1000)	[°C]	30,0114193
MPP Power	[W]	53,61
MPP Voltage	[V]	11,78
MPP Current	[A]	4,55
OC Voltage	[V]	20,87
SC Current	[A]	6,47
Fill factor	[%]	39,67

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**62,88**
MPP Voltage	[V]	11,87
MPP Current	[A]	5,30
OC Voltage	[V]	21,44
SC Current	[A]	7,54
Fill factor	[%]	38,91



Peak power deviation @ STC	**-74,33%**
Peak power deviation @ STC considering dust	**-**

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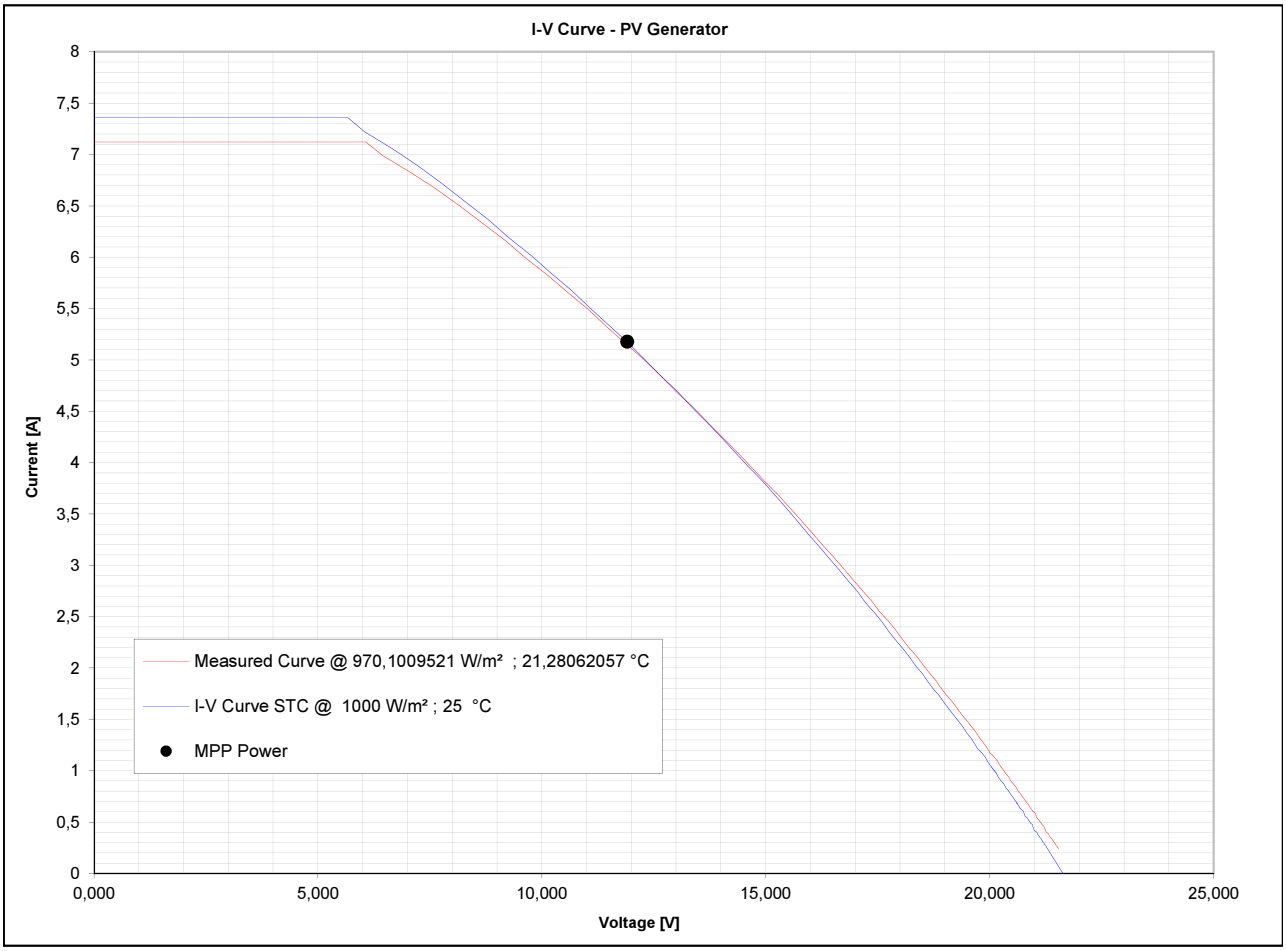
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:37:14**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3794
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	970,1009521
Module Temp. (PT1000)	[°C]	21,28062057
MPP Power	[W]	61,44
MPP Voltage	[V]	12,27
MPP Current	[A]	5,01
OC Voltage	[V]	21,89
SC Current	[A]	7,12
Fill factor	[%]	39,41

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**61,63**
MPP Voltage	[V]	11,91
MPP Current	[A]	5,17
OC Voltage	[V]	21,64
SC Current	[A]	7,36
Fill factor	[%]	38,70



Peak power deviation @ STC	**-74,84%**
Peak power deviation @ STC considering dust	**-**

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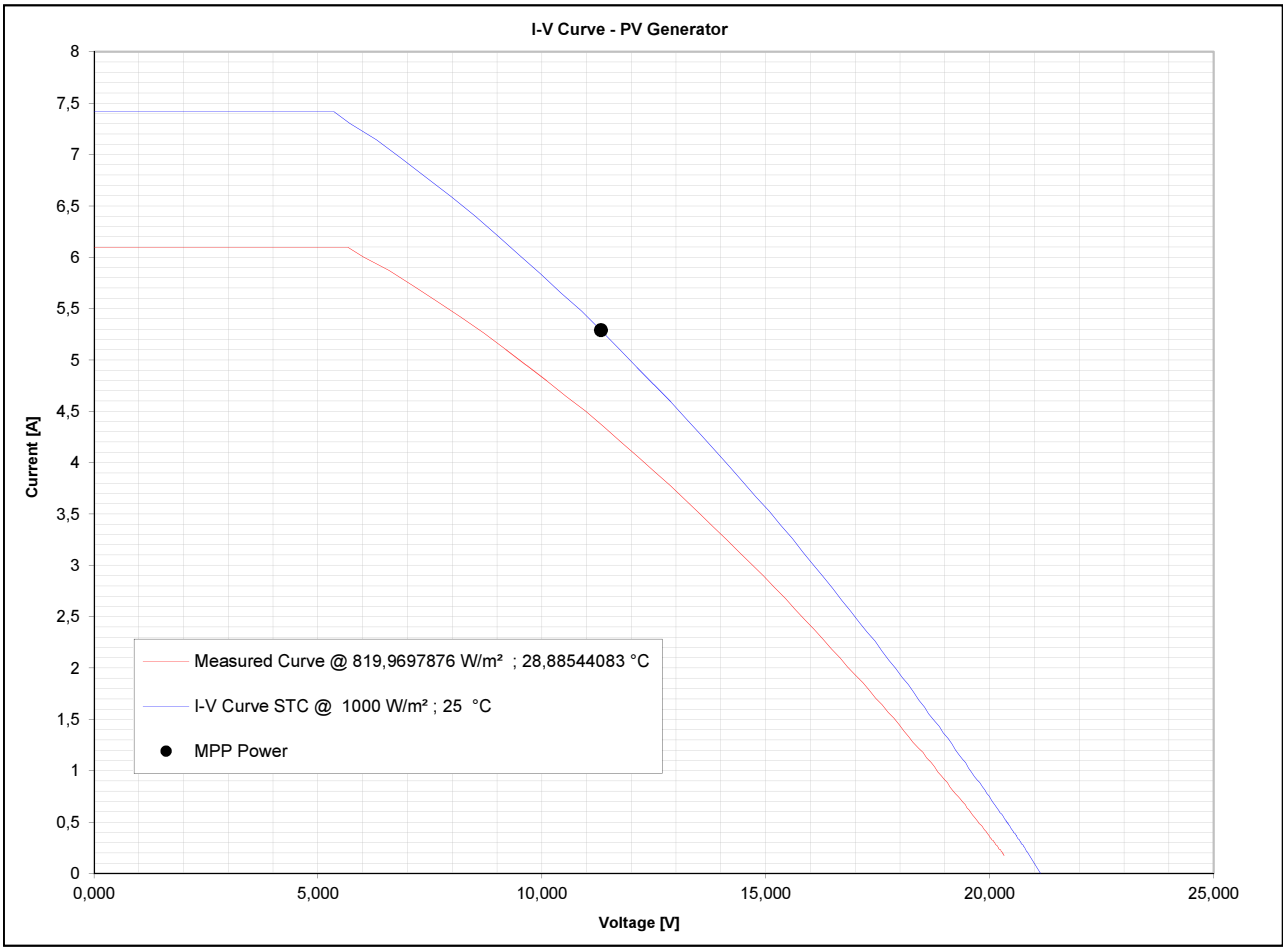
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:15:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3794
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	819,9697876
Module Temp. (PT1000)	[°C]	28,88544083
MPP Power	[W]	49,53
MPP Voltage	[V]	11,39
MPP Current	[A]	4,35
OC Voltage	[V]	20,61
SC Current	[A]	6,10
Fill factor	[%]	39,42

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**59,88**
MPP Voltage	[V]	11,32
MPP Current	[A]	5,29
OC Voltage	[V]	21,14
SC Current	[A]	7,42
Fill factor	[%]	38,19



Peak power deviation @ STC	**-75,56%**
Peak power deviation @ STC considering dust	**-**

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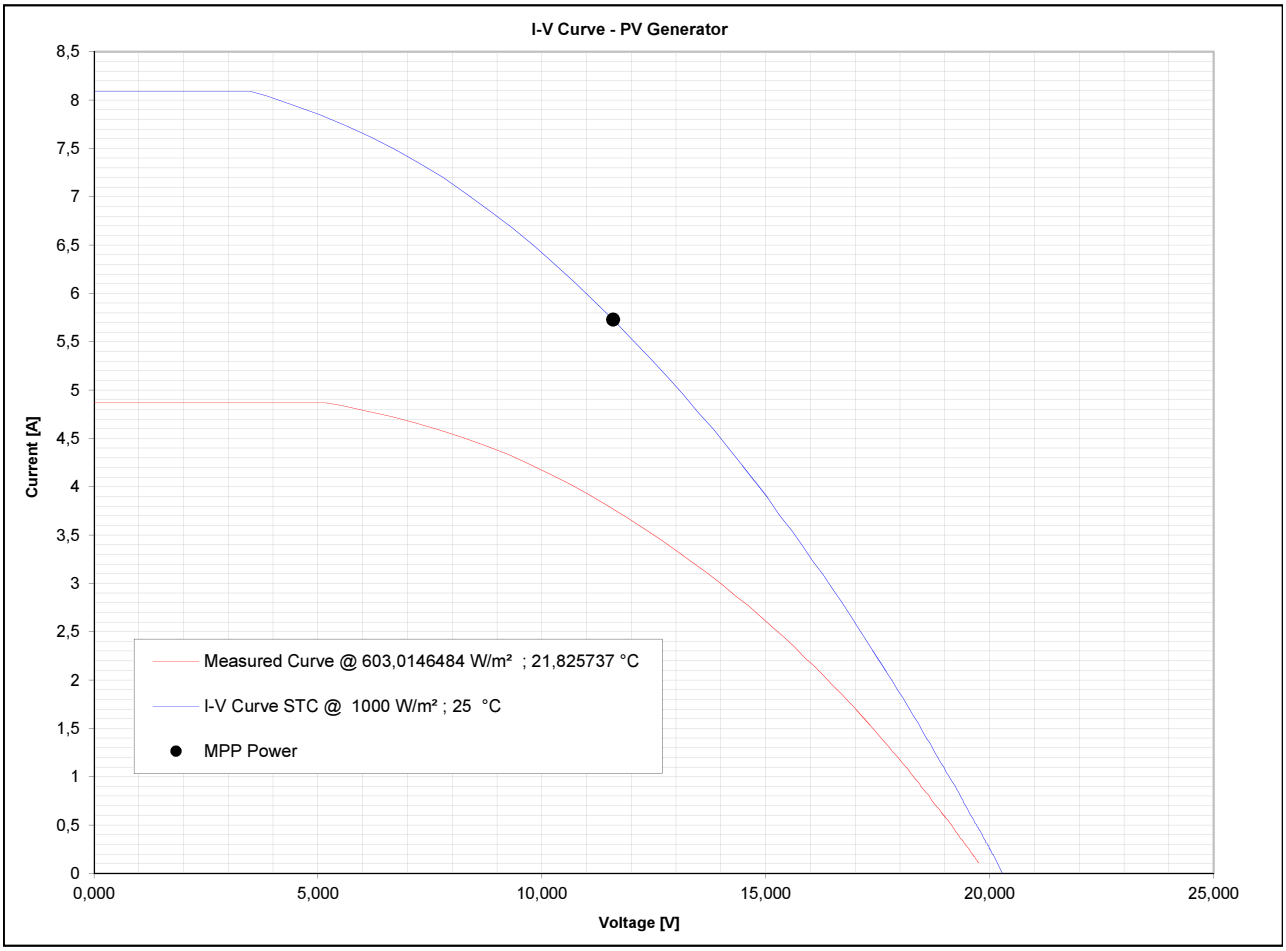
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:50:30**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3808
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-252			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	603,0146484
Module Temp. (PT1000)	[°C]	21,825737
MPP Power	[W]	43,83
MPP Voltage	[V]	11,91
MPP Current	[A]	3,68
OC Voltage	[V]	19,91
SC Current	[A]	4,87
Fill factor	[%]	45,21

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**66,42**
MPP Voltage	[V]	11,59
MPP Current	[A]	5,73
OC Voltage	[V]	20,29
SC Current	[A]	8,09
Fill factor	[%]	40,47



Peak power deviation @ STC	**-72,89%**
Peak power deviation @ STC considering dust	**-**

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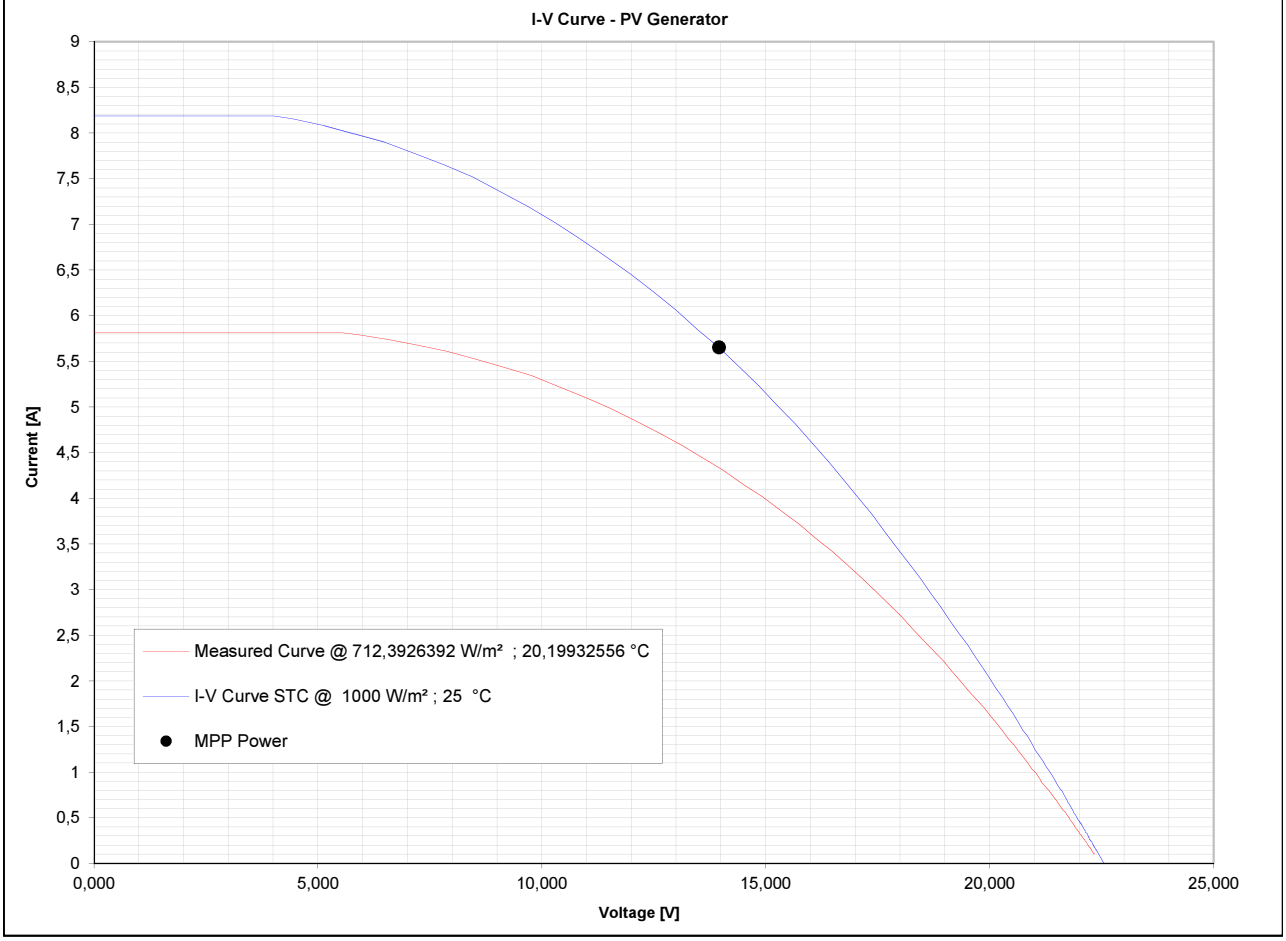
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **15:40:42**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3808
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	712,3926392
Module Temp. (PT1000)	[°C]	20,19932556
MPP Power	[W]	60,51
MPP Voltage	[V]	14,06
MPP Current	[A]	4,30
OC Voltage	[V]	22,48
SC Current	[A]	5,82
Fill factor	[%]	46,28

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**78,88**
MPP Voltage	[V]	13,96
MPP Current	[A]	5,65
OC Voltage	[V]	22,55
SC Current	[A]	8,19
Fill factor	[%]	42,72



Peak power deviation @ STC	**-67,80%**
Peak power deviation @ STC considering dust	**-**

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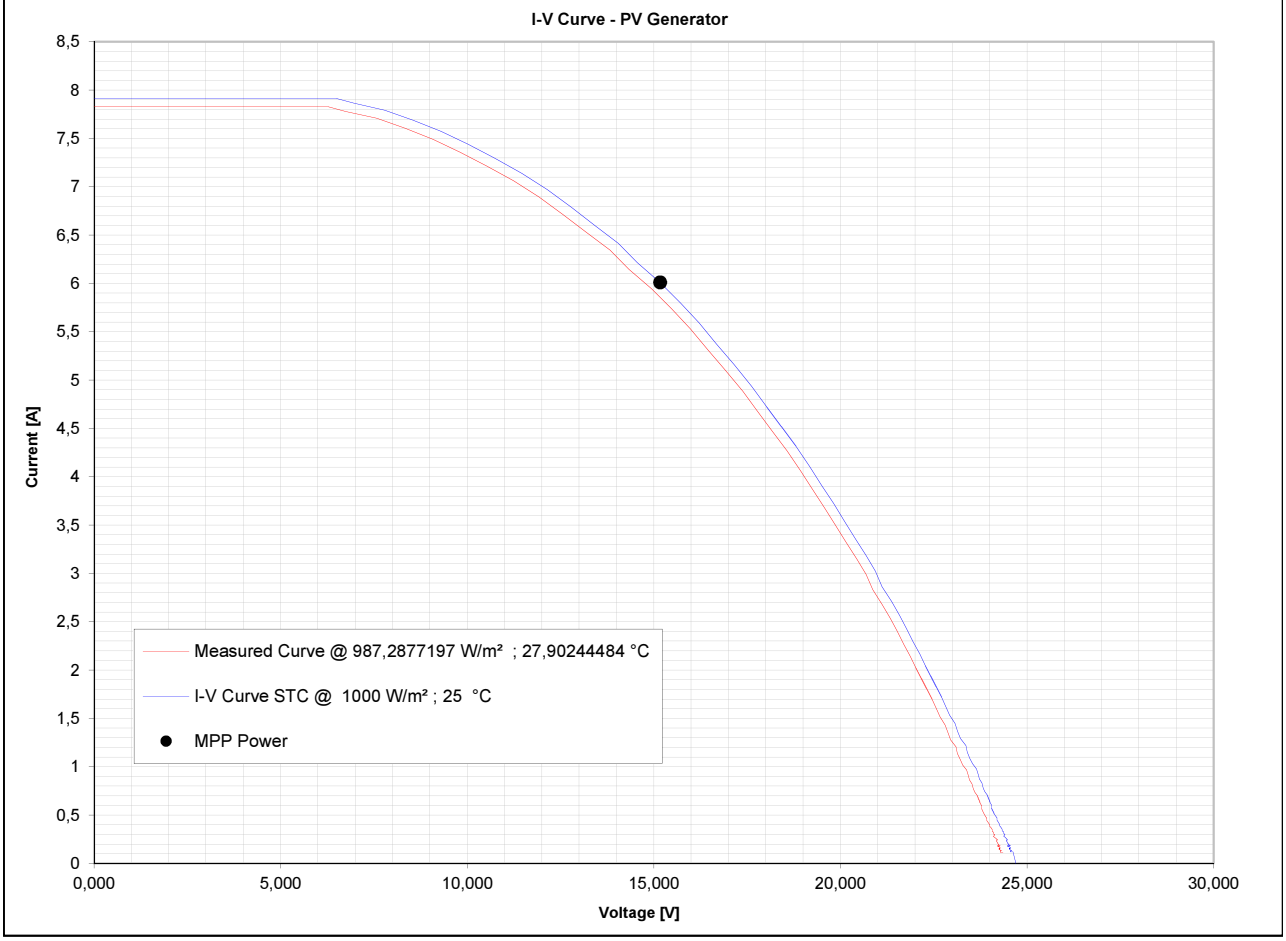
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:31:50**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3808
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	987,2877197
Module Temp. (PT1000)	[°C]	27,90244484
MPP Power	[W]	88,82
MPP Voltage	[V]	14,94
MPP Current	[A]	5,94
OC Voltage	[V]	24,43
SC Current	[A]	7,83
Fill factor	[%]	46,45

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**91,18**
MPP Voltage	[V]	15,17
MPP Current	[A]	6,01
OC Voltage	[V]	24,70
SC Current	[A]	7,91
Fill factor	[%]	46,64



Peak power deviation @ STC	**-62,78%**
Peak power deviation @ STC considering dust	**-**

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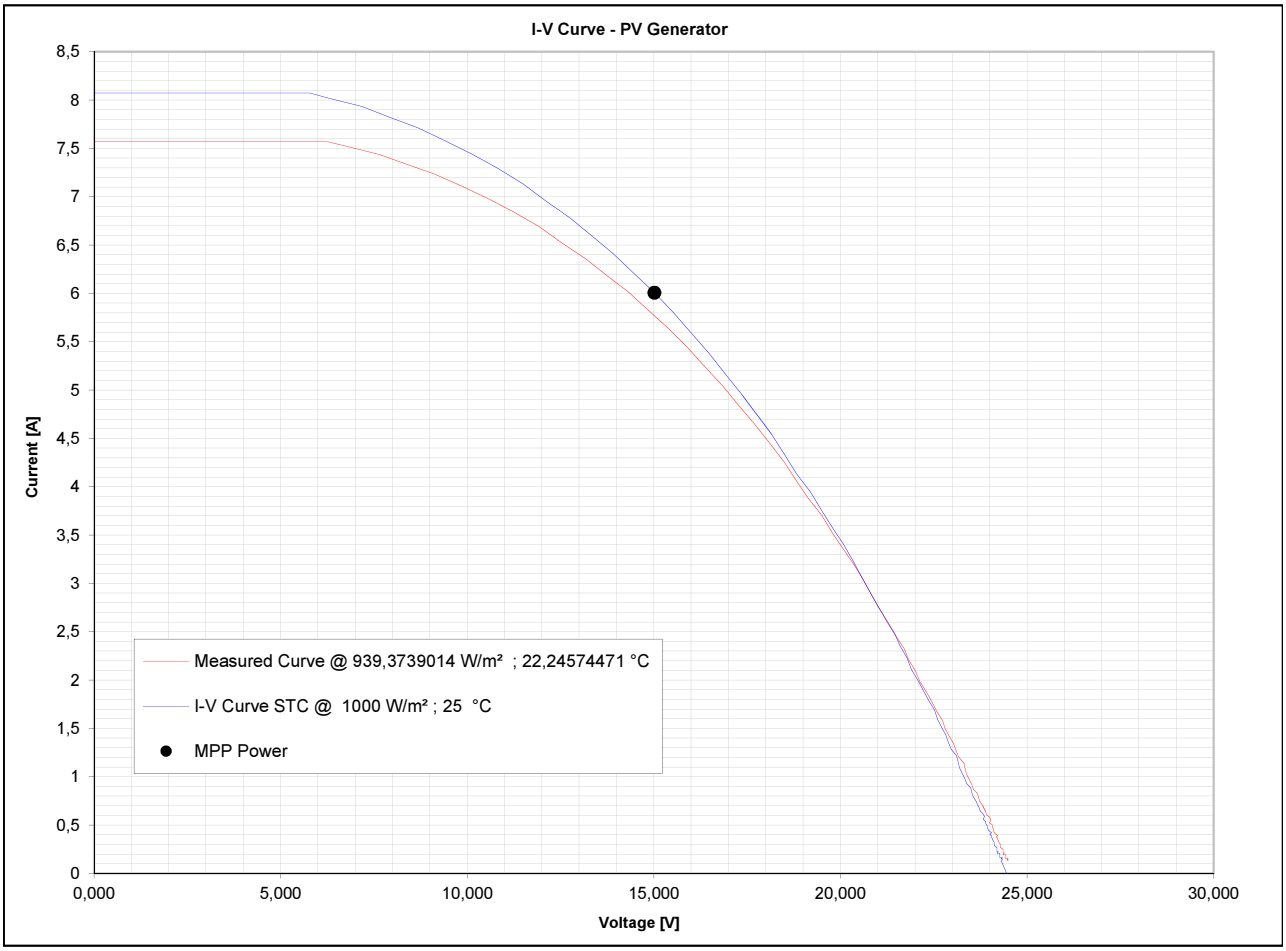
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:41:50**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3808
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	939,3739014
Module Temp. (PT1000)	[°C]	22,24574471
MPP Power	[W]	86,79
MPP Voltage	[V]	15,41
MPP Current	[A]	5,63
OC Voltage	[V]	24,60
SC Current	[A]	7,57
Fill factor	[%]	46,60

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**90,22**
MPP Voltage	[V]	15,02
MPP Current	[A]	6,01
OC Voltage	[V]	24,45
SC Current	[A]	8,07
Fill factor	[%]	45,71



Peak power deviation @ STC	**-63,18%**
Peak power deviation @ STC considering dust	**-**

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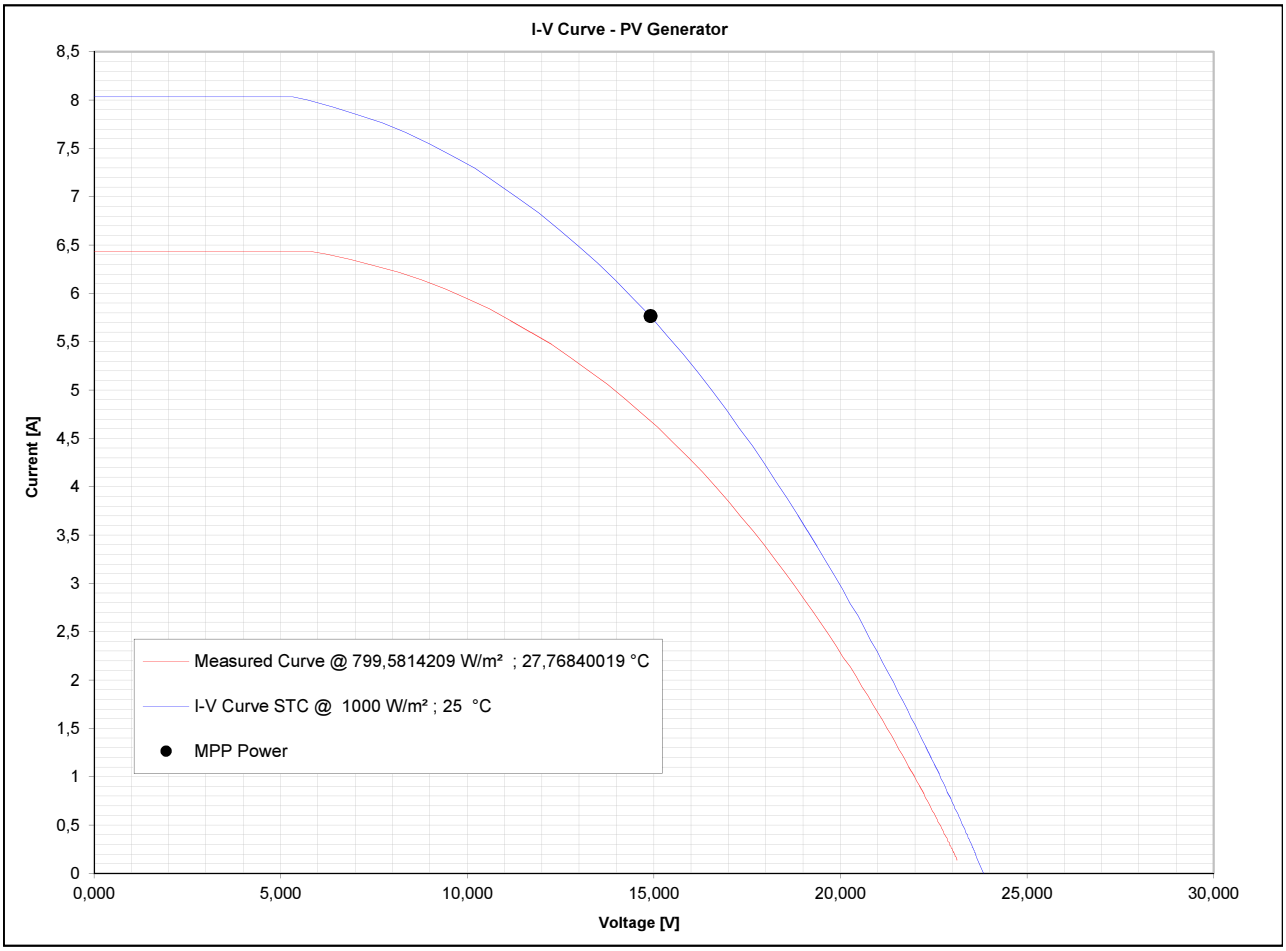
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:06:12**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3808
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	799,5814209
Module Temp. (PT1000)	[°C]	27,76840019
MPP Power	[W]	69,87
MPP Voltage	[V]	14,67
MPP Current	[A]	4,76
OC Voltage	[V]	23,29
SC Current	[A]	6,44
Fill factor	[%]	46,61

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**85,99**
MPP Voltage	[V]	14,92
MPP Current	[A]	5,76
OC Voltage	[V]	23,83
SC Current	[A]	8,04
Fill factor	[%]	44,90



Peak power deviation @ STC	**-64,90%**
Peak power deviation @ STC considering dust	**-**

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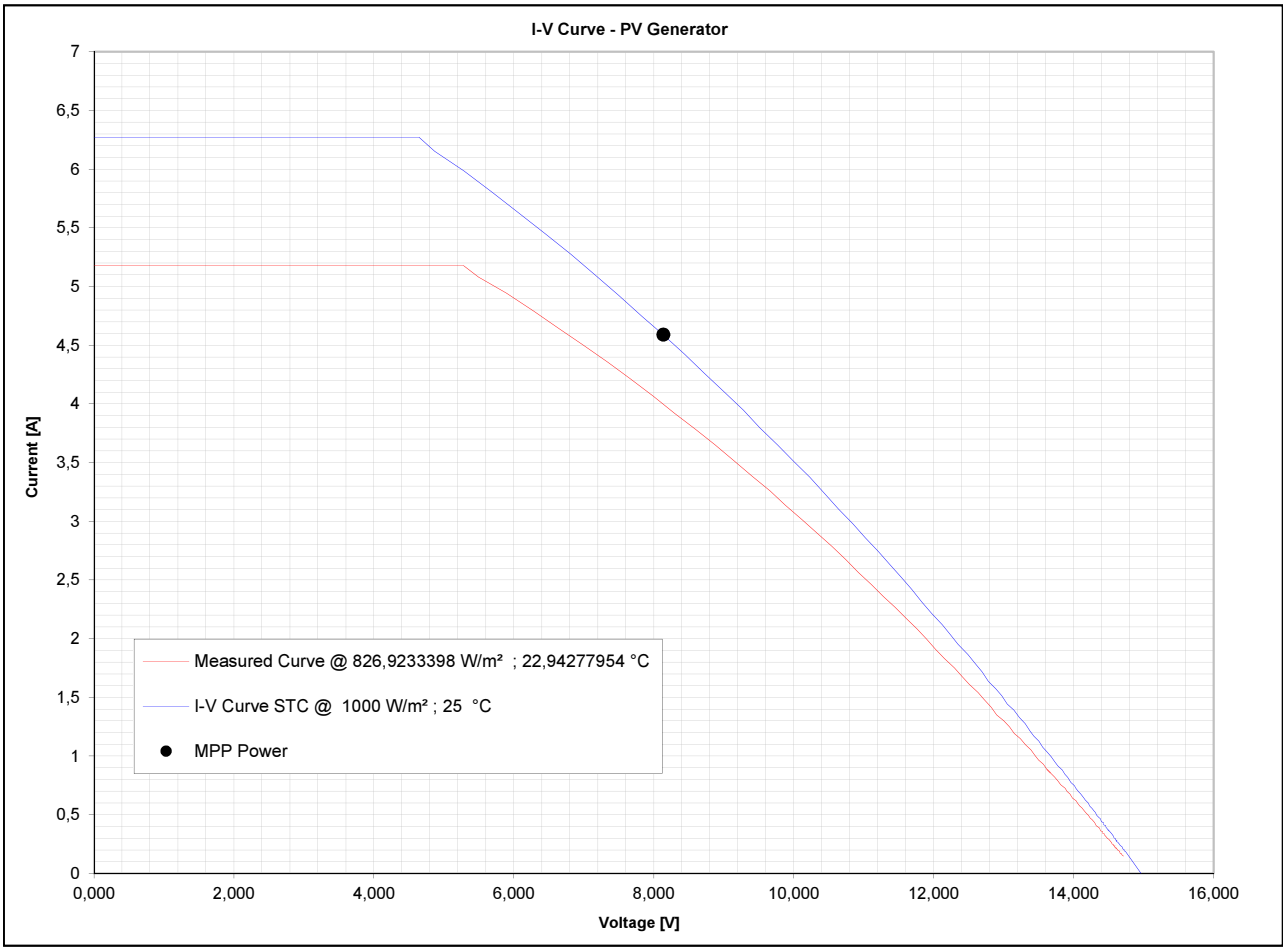
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **17:06:52**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3876
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-257			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	826,9233398
Module Temp. (PT1000)	[°C]	22,94277954
MPP Power	[W]	32,54
MPP Voltage	[V]	8,59
MPP Current	[A]	3,79
OC Voltage	[V]	14,90
SC Current	[A]	5,18
Fill factor	[%]	42,16

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**37,34**
MPP Voltage	[V]	8,14
MPP Current	[A]	4,59
OC Voltage	[V]	14,96
SC Current	[A]	6,27
Fill factor	[%]	39,79



Peak power deviation @ STC	**-84,76%**
Peak power deviation @ STC considering dust	**-**

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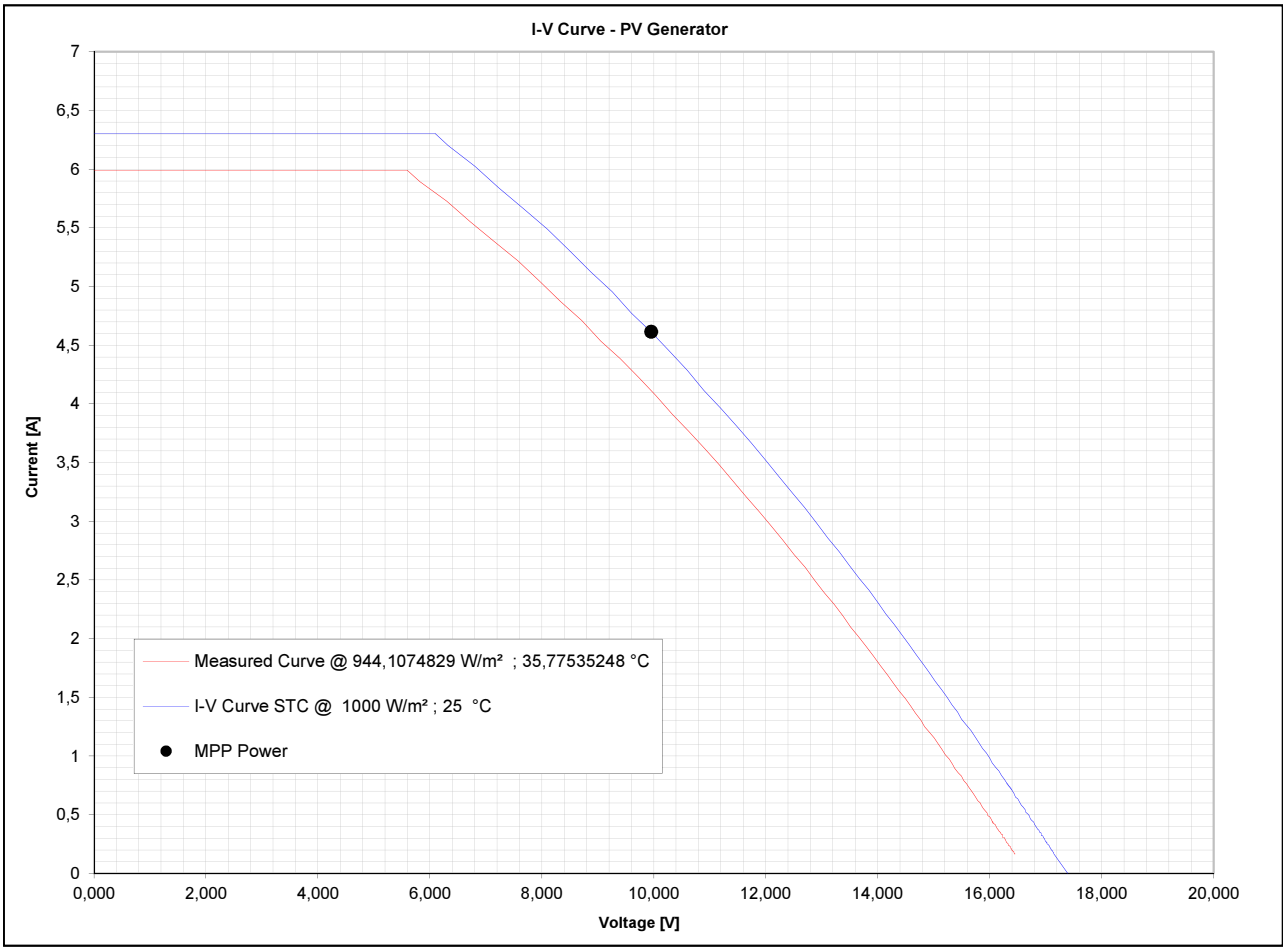
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **14:01:04**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3876
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	944,1074829
Module Temp. (PT1000)	[°C]	35,77535248
MPP Power	[W]	41,23
MPP Voltage	[V]	9,40
MPP Current	[A]	4,38
OC Voltage	[V]	16,70
SC Current	[A]	5,99
Fill factor	[%]	41,20

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**45,92**
MPP Voltage	[V]	9,96
MPP Current	[A]	4,61
OC Voltage	[V]	17,40
SC Current	[A]	6,30
Fill factor	[%]	41,87



Peak power deviation @ STC	**-81,26%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

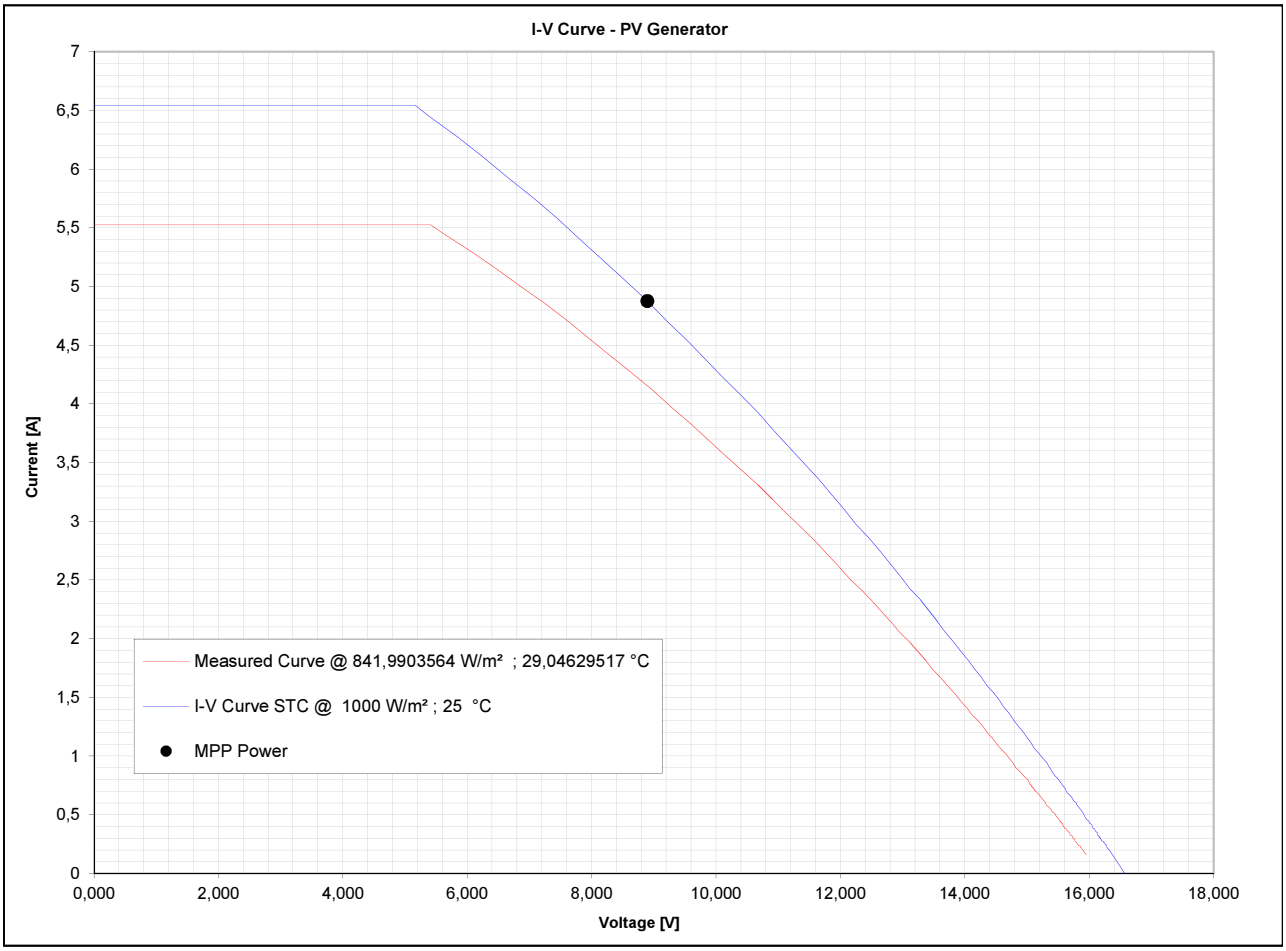
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:57:18**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3876
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	841,9903564
Module Temp. (PT1000)	[°C]	29,04629517
MPP Power	[W]	36,98
MPP Voltage	[V]	8,99
MPP Current	[A]	4,12
OC Voltage	[V]	16,17
SC Current	[A]	5,53
Fill factor	[%]	41,38

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**43,39**
MPP Voltage	[V]	8,90
MPP Current	[A]	4,88
OC Voltage	[V]	16,57
SC Current	[A]	6,55
Fill factor	[%]	40,00



Peak power deviation @ STC	**-82,29%**
Peak power deviation @ STC considering dust	**-**

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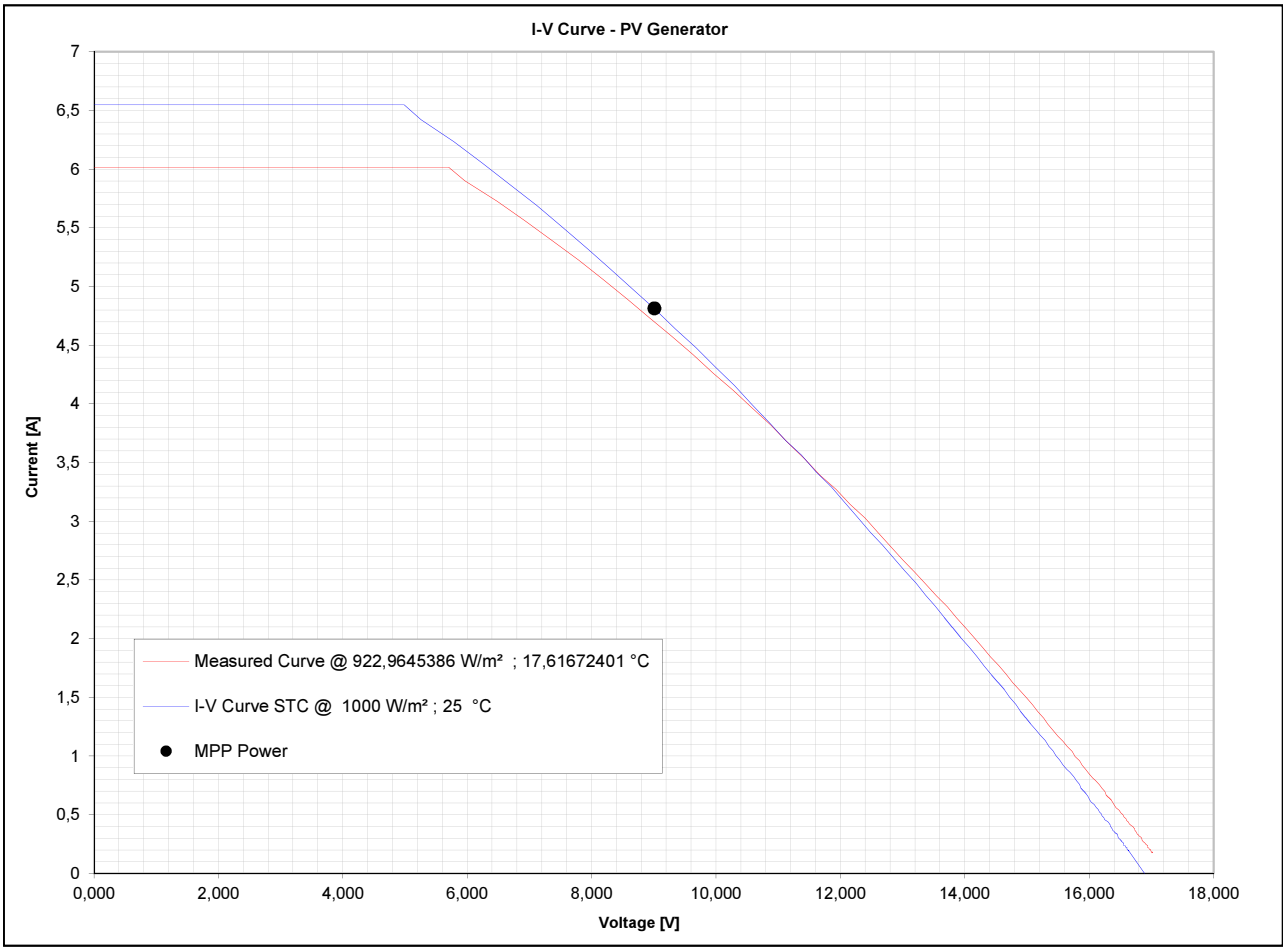
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:32:16**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3876
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	922,9645386
Module Temp. (PT1000)	[°C]	17,61672401
MPP Power	[W]	42,58
MPP Voltage	[V]	9,63
MPP Current	[A]	4,42
OC Voltage	[V]	17,26
SC Current	[A]	6,02
Fill factor	[%]	41,01

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**43,36**
MPP Voltage	[V]	9,01
MPP Current	[A]	4,81
OC Voltage	[V]	16,89
SC Current	[A]	6,55
Fill factor	[%]	39,21



Peak power deviation @ STC	**-82,30%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

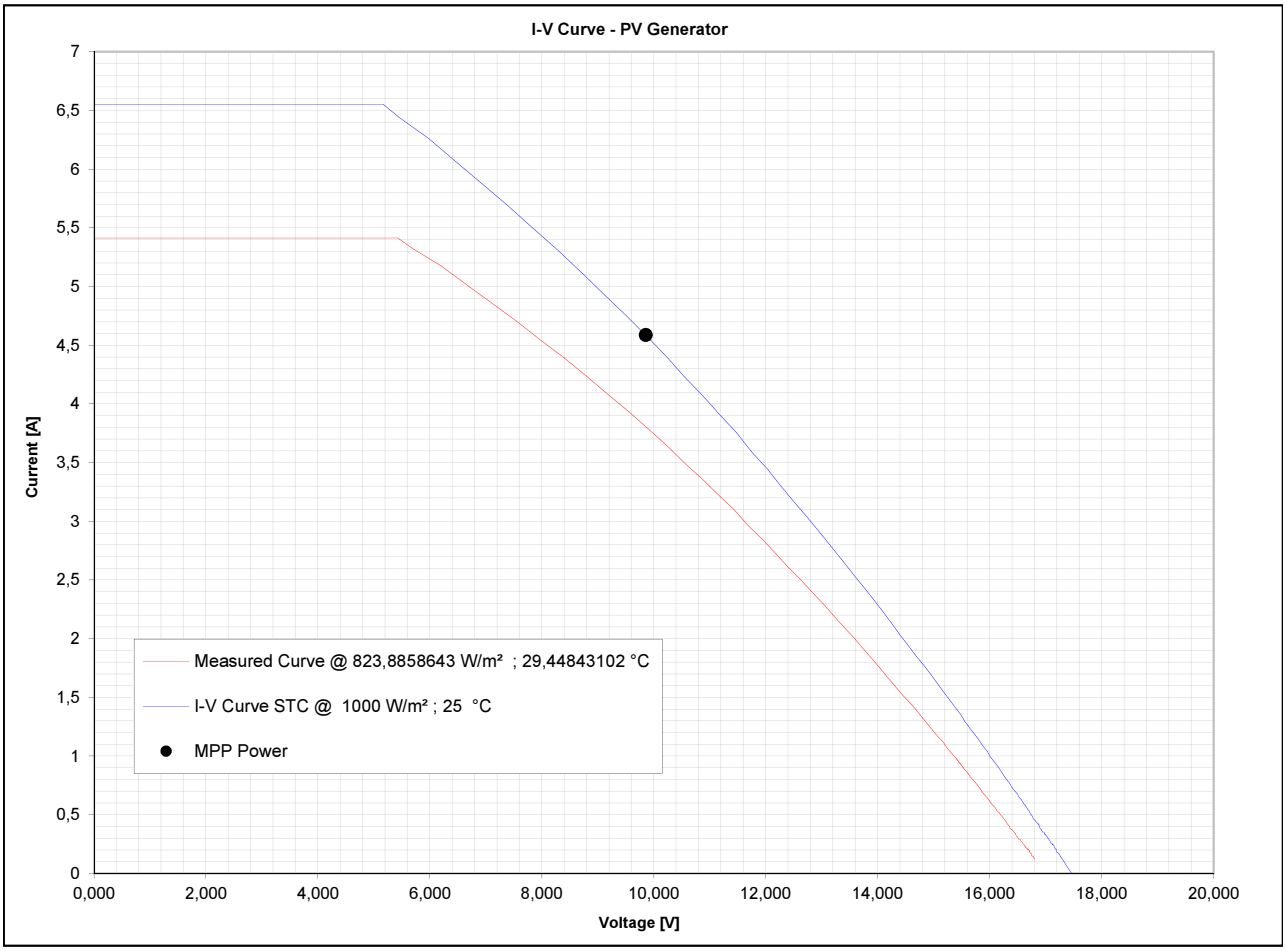
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:16:26**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3876
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	823,8858643
Module Temp. (PT1000)	[°C]	29,44843102
MPP Power	[W]	37,58
MPP Voltage	[V]	9,55
MPP Current	[A]	3,93
OC Voltage	[V]	17,00
SC Current	[A]	5,41
Fill factor	[%]	40,83

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**45,21**
MPP Voltage	[V]	9,86
MPP Current	[A]	4,59
OC Voltage	[V]	17,47
SC Current	[A]	6,55
Fill factor	[%]	39,50



Peak power deviation @ STC	**-81,55%**
Peak power deviation @ STC considering dust	**-**

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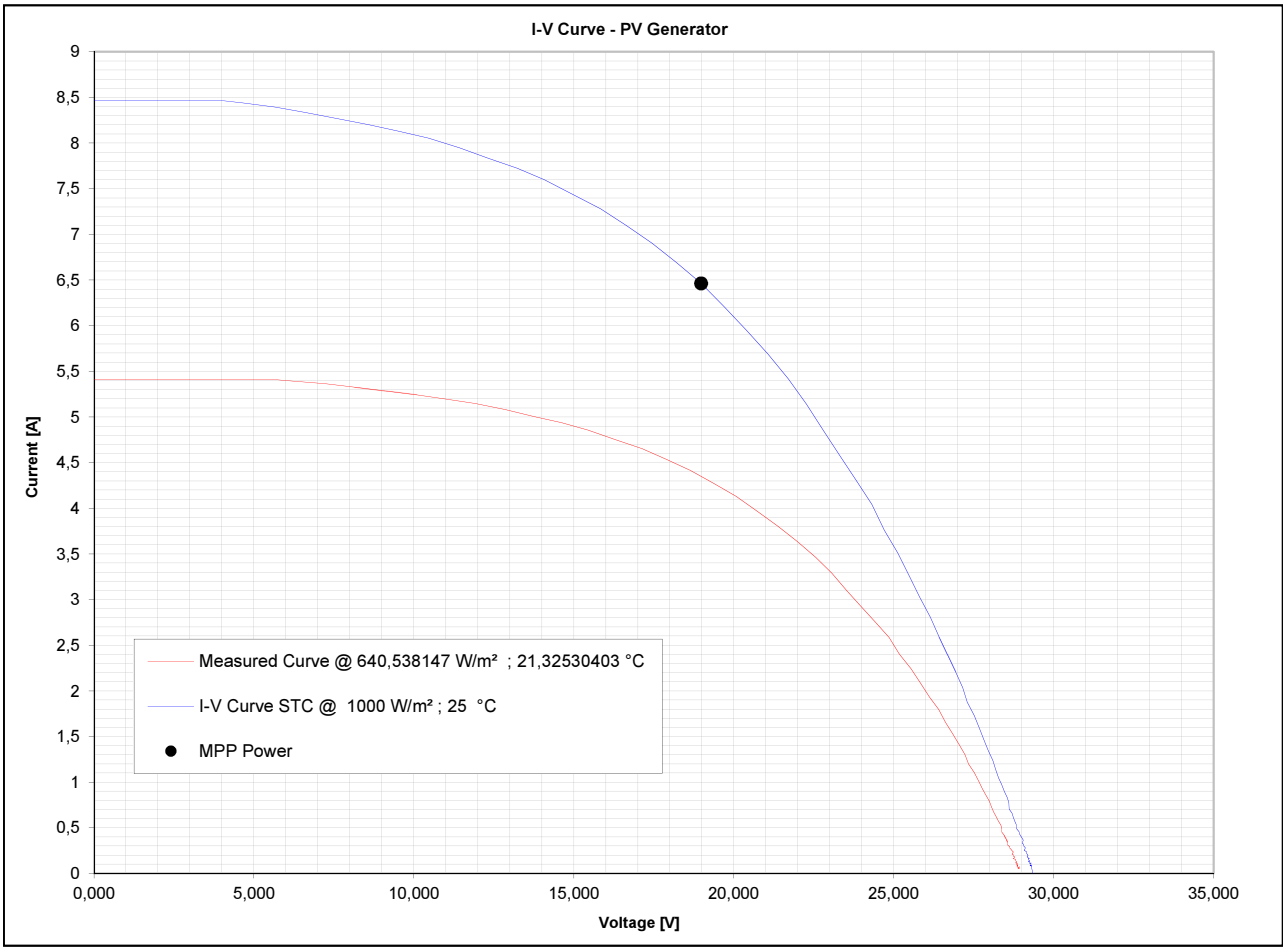
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:25:46**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3898
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-244			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	640,538147
Module Temp. (PT1000)	[°C]	21,32530403
MPP Power	[W]	82,94
MPP Voltage	[V]	20,08
MPP Current	[A]	4,13
OC Voltage	[V]	28,96
SC Current	[A]	5,41
Fill factor	[%]	52,92

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**122,69**
MPP Voltage	[V]	18,98
MPP Current	[A]	6,46
OC Voltage	[V]	29,35
SC Current	[A]	8,47
Fill factor	[%]	49,35



Peak power deviation @ STC	**-49,92%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

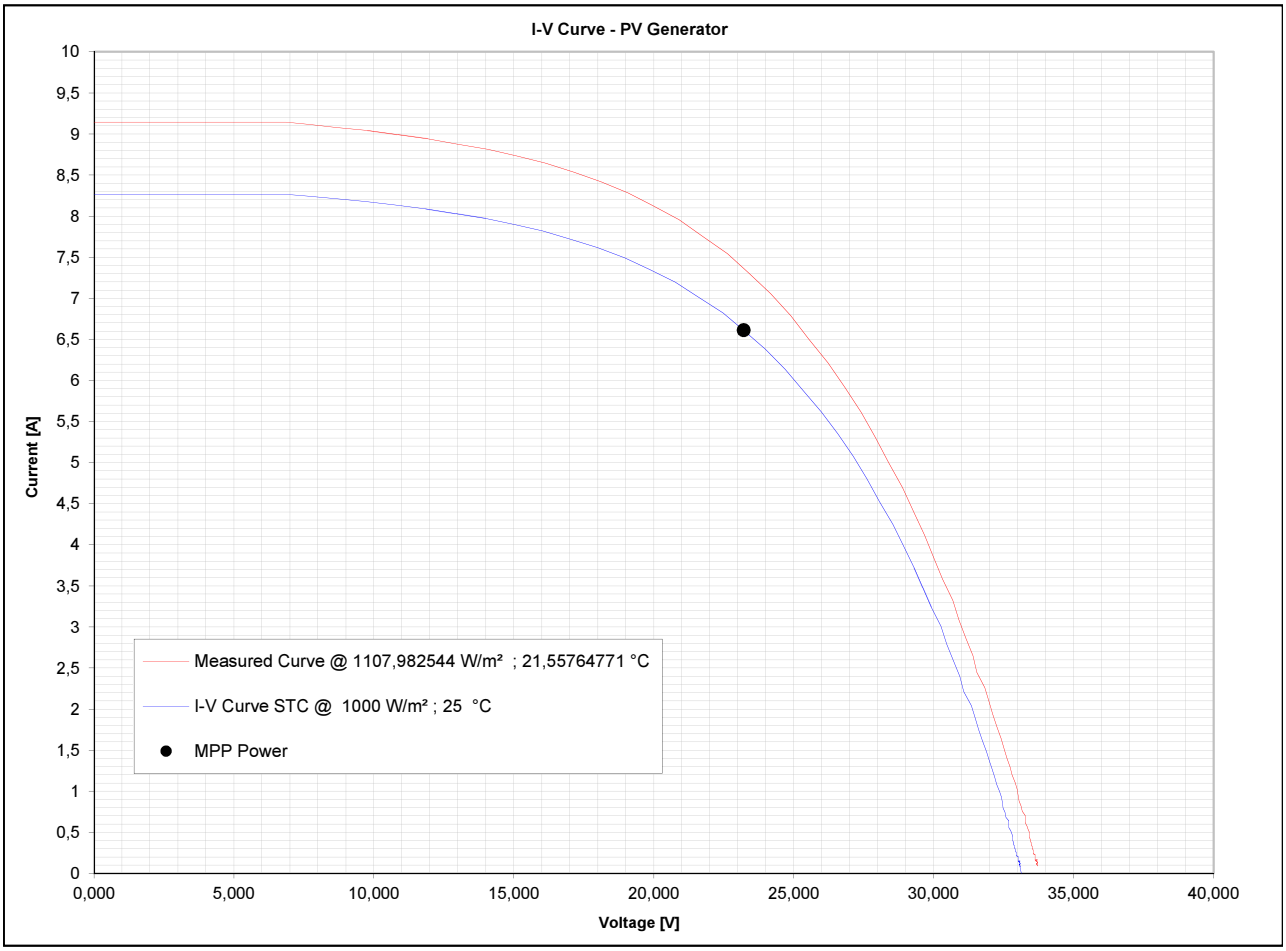
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:40:54**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3898
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1107,982544
Module Temp. (PT1000)	[°C]	21,55764771
MPP Power	[W]	170,93
MPP Voltage	[V]	23,39
MPP Current	[A]	7,31
OC Voltage	[V]	33,76
SC Current	[A]	9,14
Fill factor	[%]	55,39

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**153,45**
MPP Voltage	[V]	23,21
MPP Current	[A]	6,61
OC Voltage	[V]	33,14
SC Current	[A]	8,27
Fill factor	[%]	56,00



Peak power deviation @ STC	**-37,37%**
Peak power deviation @ STC considering dust	**-**

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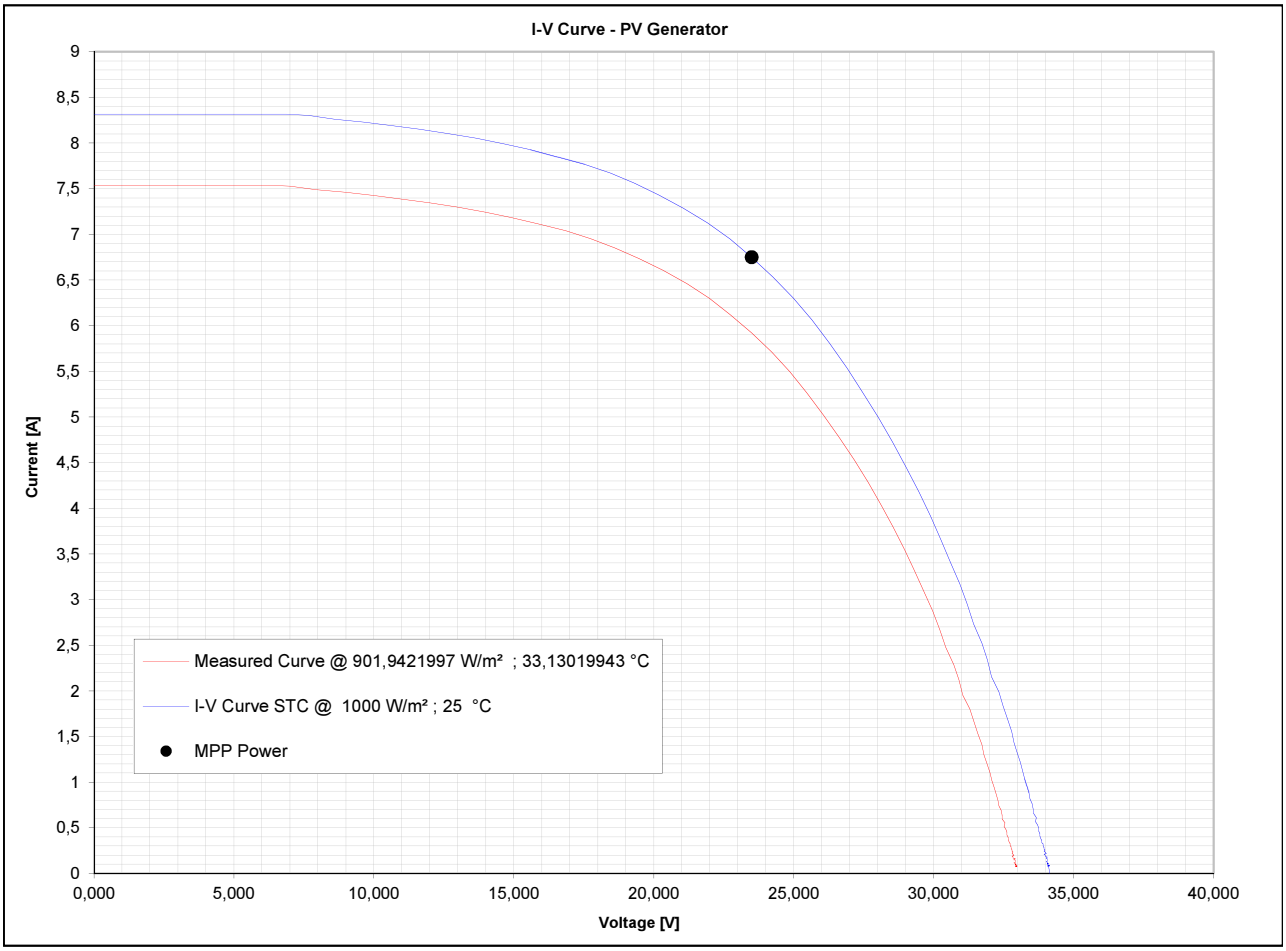
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:45:06**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3898
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	901,9421997
Module Temp. (PT1000)	[°C]	33,13019943
MPP Power	[W]	139,16
MPP Voltage	[V]	23,50
MPP Current	[A]	5,92
OC Voltage	[V]	32,99
SC Current	[A]	7,54
Fill factor	[%]	55,96

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**158,59**
MPP Voltage	[V]	23,50
MPP Current	[A]	6,75
OC Voltage	[V]	34,15
SC Current	[A]	8,32
Fill factor	[%]	55,85



Peak power deviation @ STC	**-35,27%**
Peak power deviation @ STC considering dust	**-**

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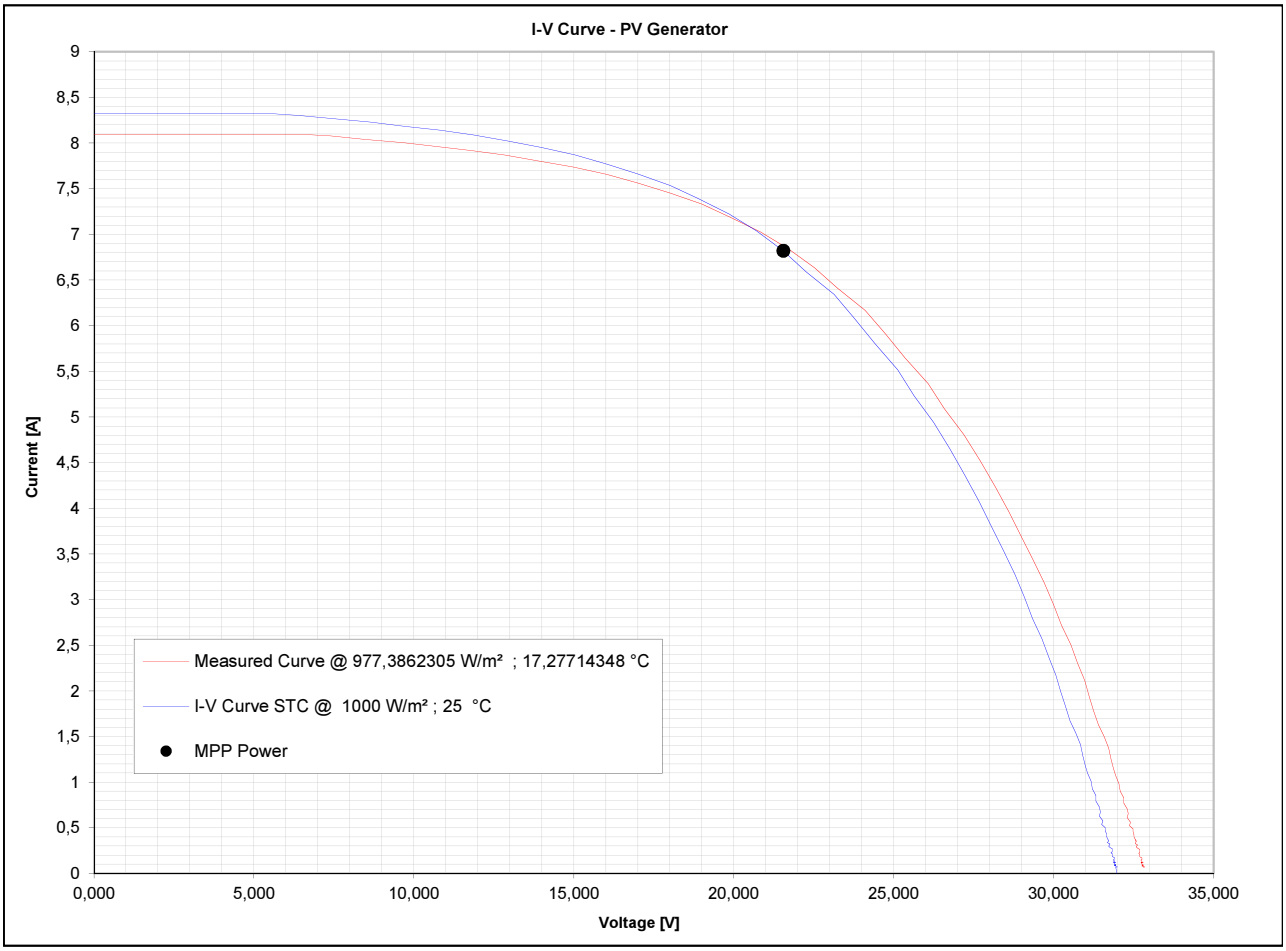
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:31:24**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3898
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	977,3862305
Module Temp. (PT1000)	[°C]	17,27714348
MPP Power	[W]	149,43
MPP Voltage	[V]	22,52
MPP Current	[A]	6,63
OC Voltage	[V]	32,84
SC Current	[A]	8,10
Fill factor	[%]	56,20

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**146,96**
MPP Voltage	[V]	21,55
MPP Current	[A]	6,82
OC Voltage	[V]	31,98
SC Current	[A]	8,32
Fill factor	[%]	55,20



Peak power deviation @ STC	**-40,02%**
Peak power deviation @ STC considering dust	**-**

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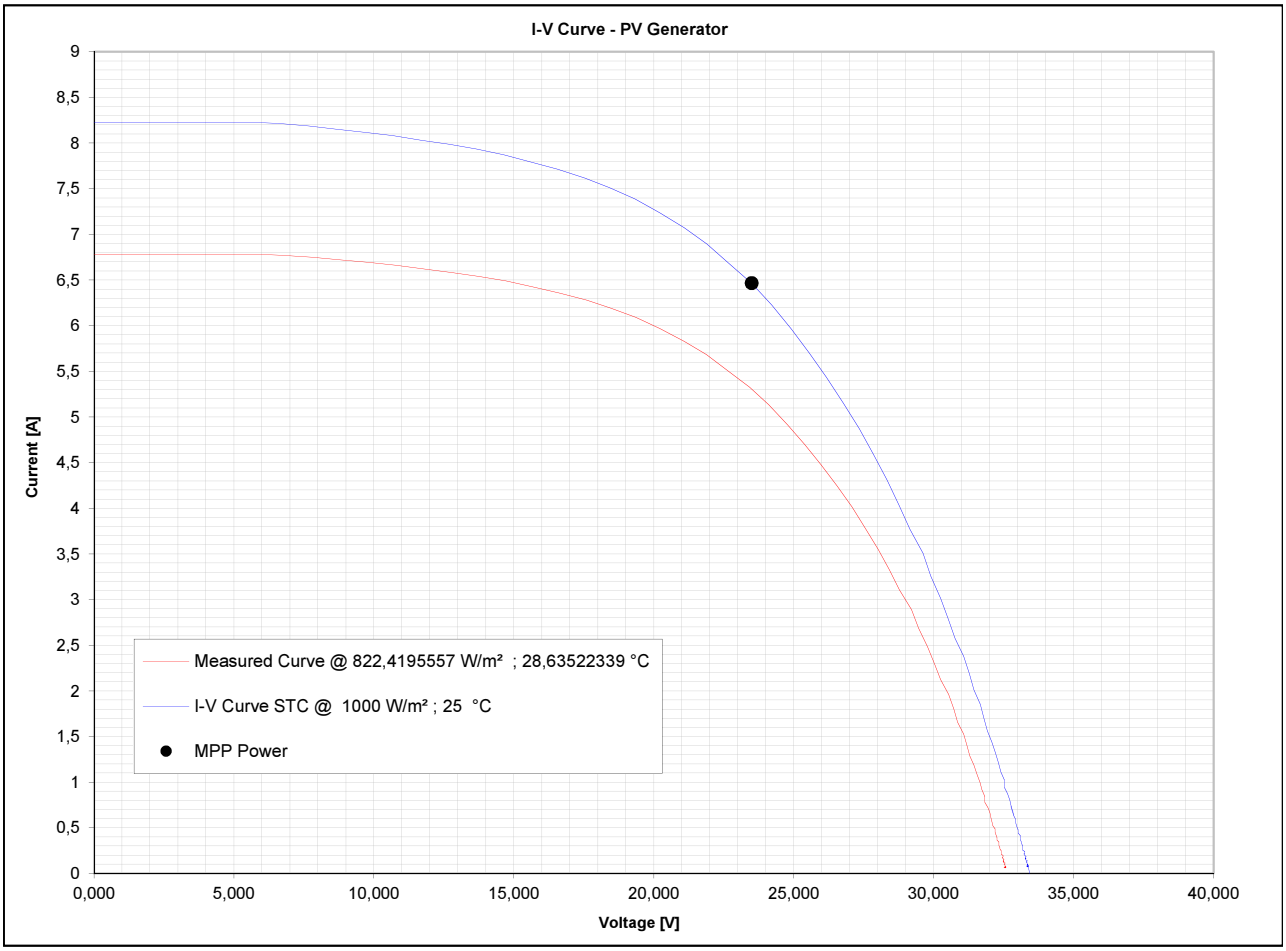
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:12:26**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3898
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	822,4195557
Module Temp. (PT1000)	[°C]	28,63522339
MPP Power	[W]	124,79
MPP Voltage	[V]	23,42
MPP Current	[A]	5,33
OC Voltage	[V]	32,62
SC Current	[A]	6,78
Fill factor	[%]	56,42

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**151,90**
MPP Voltage	[V]	23,50
MPP Current	[A]	6,46
OC Voltage	[V]	33,43
SC Current	[A]	8,23
Fill factor	[%]	55,24



Peak power deviation @ STC	**-38,00%**
Peak power deviation @ STC considering dust	**-**

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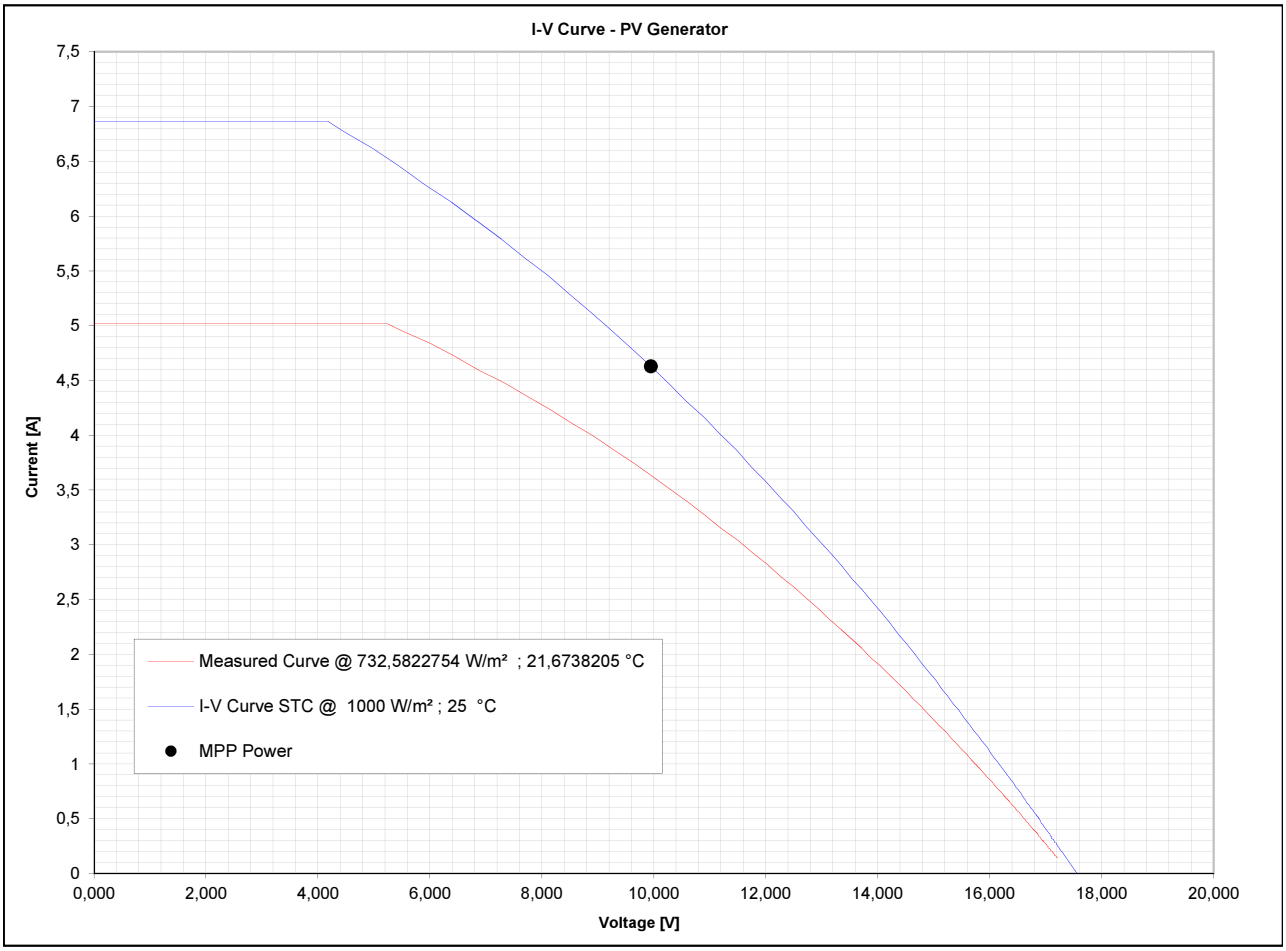
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **16:36:04**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3899
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-253			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	732,5822754
Module Temp. (PT1000)	[°C]	21,6738205
MPP Power	[W]	36,15
MPP Voltage	[V]	9,98
MPP Current	[A]	3,62
OC Voltage	[V]	17,44
SC Current	[A]	5,02
Fill factor	[%]	41,30

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**46,04**
MPP Voltage	[V]	9,95
MPP Current	[A]	4,63
OC Voltage	[V]	17,56
SC Current	[A]	6,86
Fill factor	[%]	38,19



Peak power deviation @ STC	**-81,21%**
Peak power deviation @ STC considering dust	**-**

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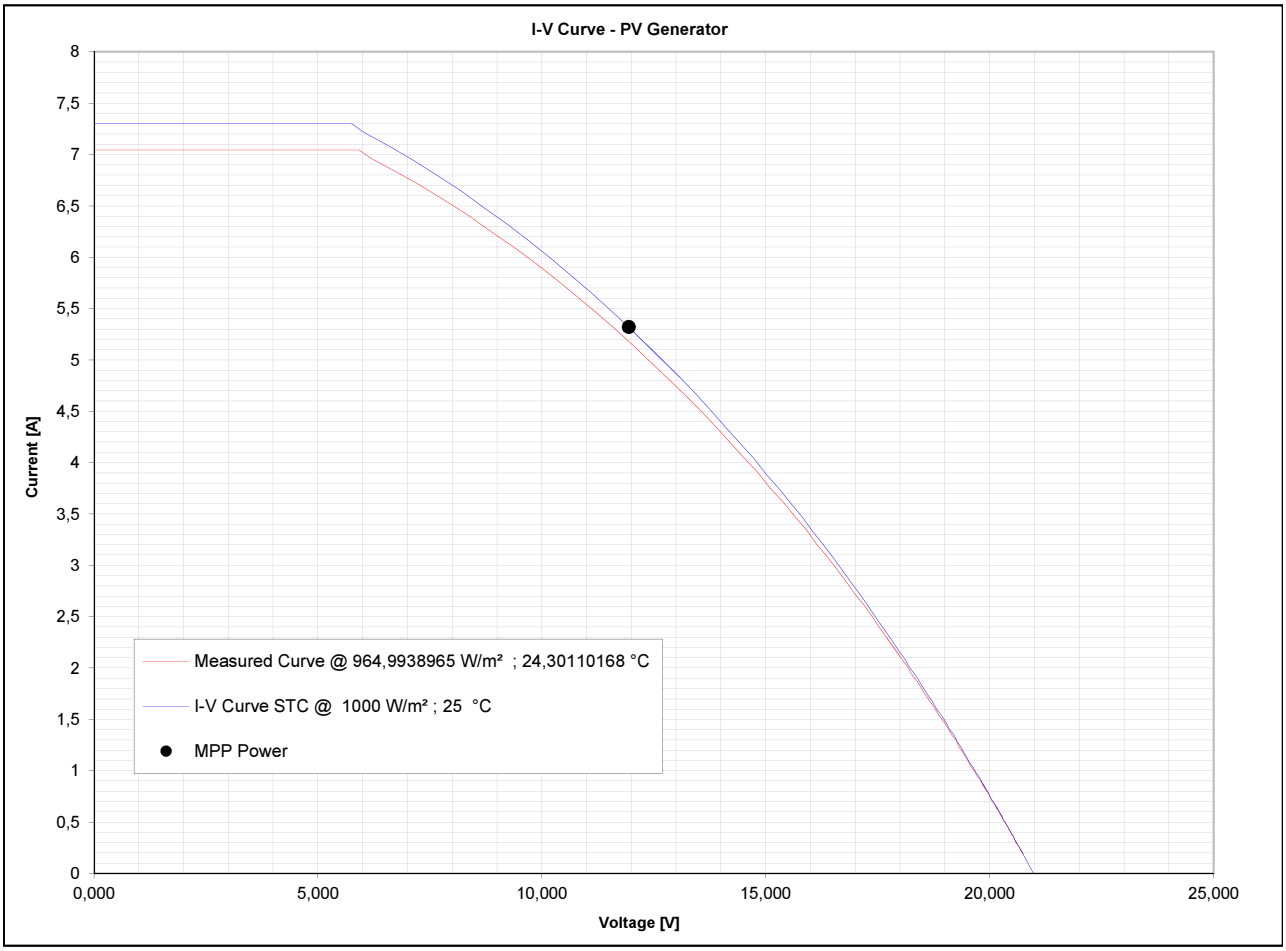
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **15:44:02**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3899
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	964,9938965
Module Temp. (PT1000)	[°C]	24,30110168
MPP Power	[W]	61,93
MPP Voltage	[V]	12,07
MPP Current	[A]	5,13
OC Voltage	[V]	20,99
SC Current	[A]	7,04
Fill factor	[%]	41,89

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**63,52**
MPP Voltage	[V]	11,94
MPP Current	[A]	5,32
OC Voltage	[V]	20,98
SC Current	[A]	7,30
Fill factor	[%]	41,46



Peak power deviation @ STC	**-74,07%**
Peak power deviation @ STC considering dust	**-**

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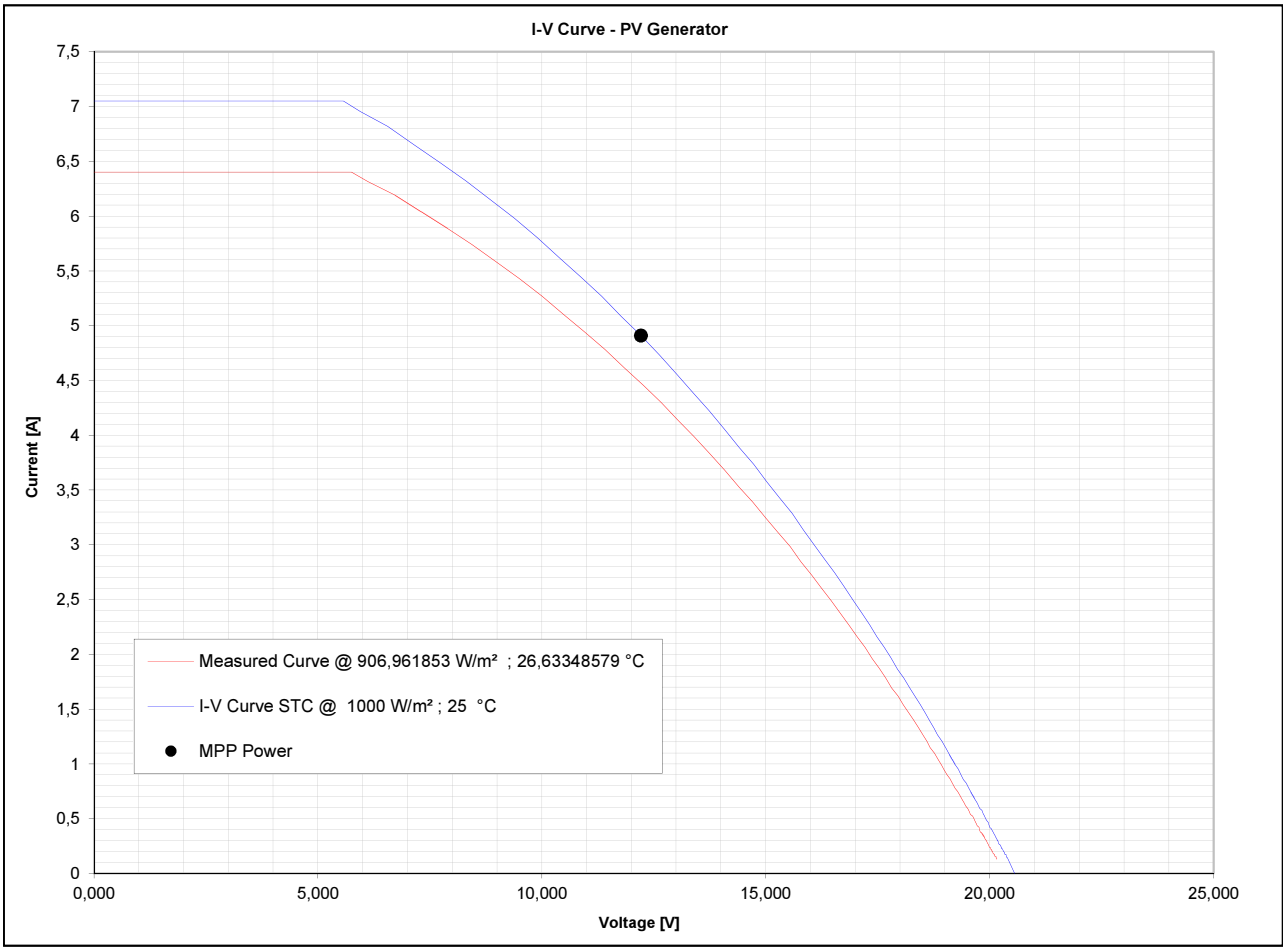
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:30:12**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3899
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	906,961853
Module Temp. (PT1000)	[°C]	26,63348579
MPP Power	[W]	54,67
MPP Voltage	[V]	12,27
MPP Current	[A]	4,46
OC Voltage	[V]	20,32
SC Current	[A]	6,40
Fill factor	[%]	42,03

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**59,96**
MPP Voltage	[V]	12,21
MPP Current	[A]	4,91
OC Voltage	[V]	20,56
SC Current	[A]	7,05
Fill factor	[%]	41,37



Peak power deviation @ STC	**-75,53%**
Peak power deviation @ STC considering dust	**-**

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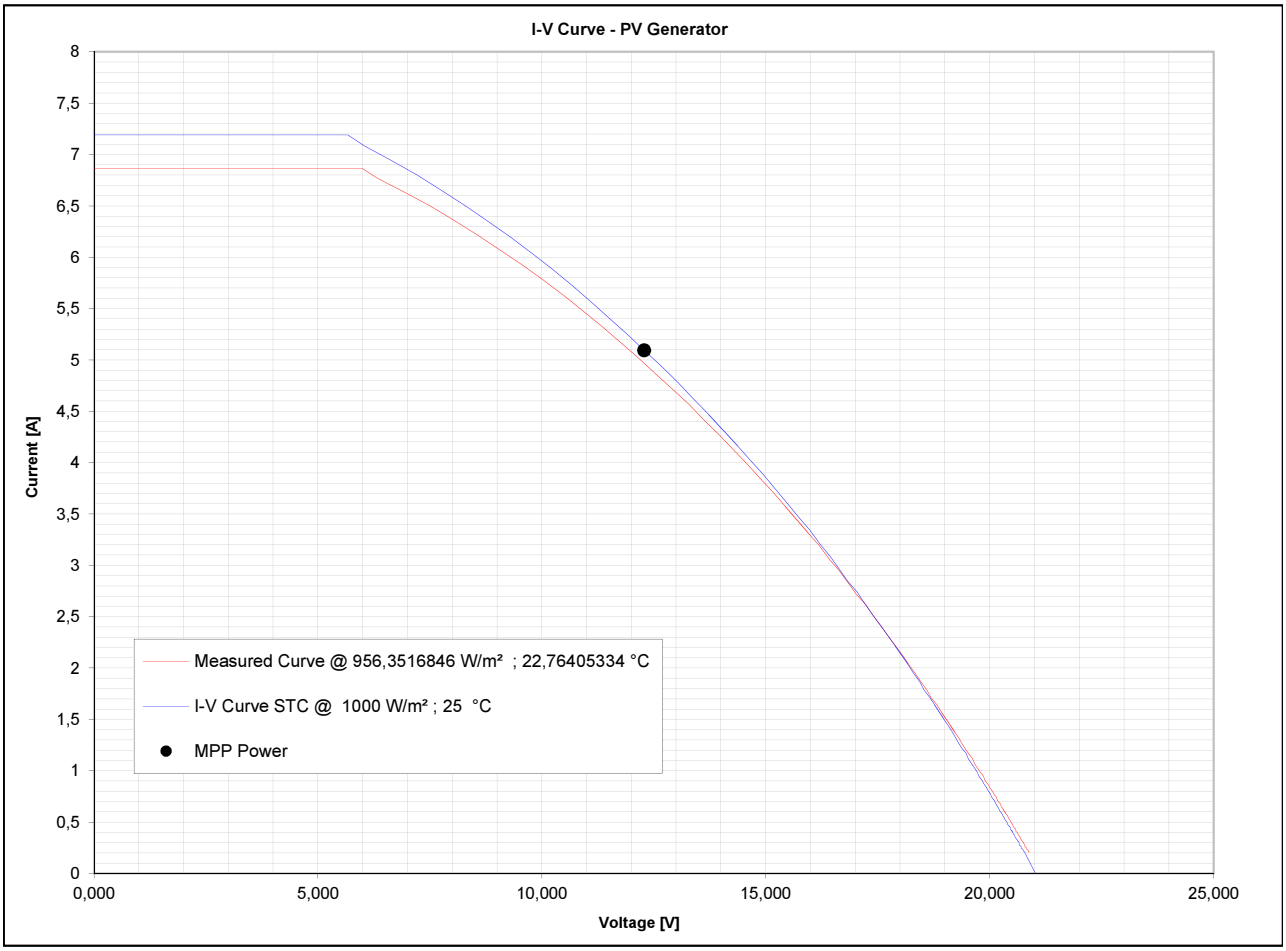
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:42:40**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3899
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	956,3516846
Module Temp. (PT1000)	[°C]	22,76405334
MPP Power	[W]	61,03
MPP Voltage	[V]	12,17
MPP Current	[A]	5,02
OC Voltage	[V]	21,14
SC Current	[A]	6,87
Fill factor	[%]	42,05

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**62,57**
MPP Voltage	[V]	12,29
MPP Current	[A]	5,09
OC Voltage	[V]	21,02
SC Current	[A]	7,19
Fill factor	[%]	41,39



Peak power deviation @ STC	**-74,46%**
Peak power deviation @ STC considering dust	**-**

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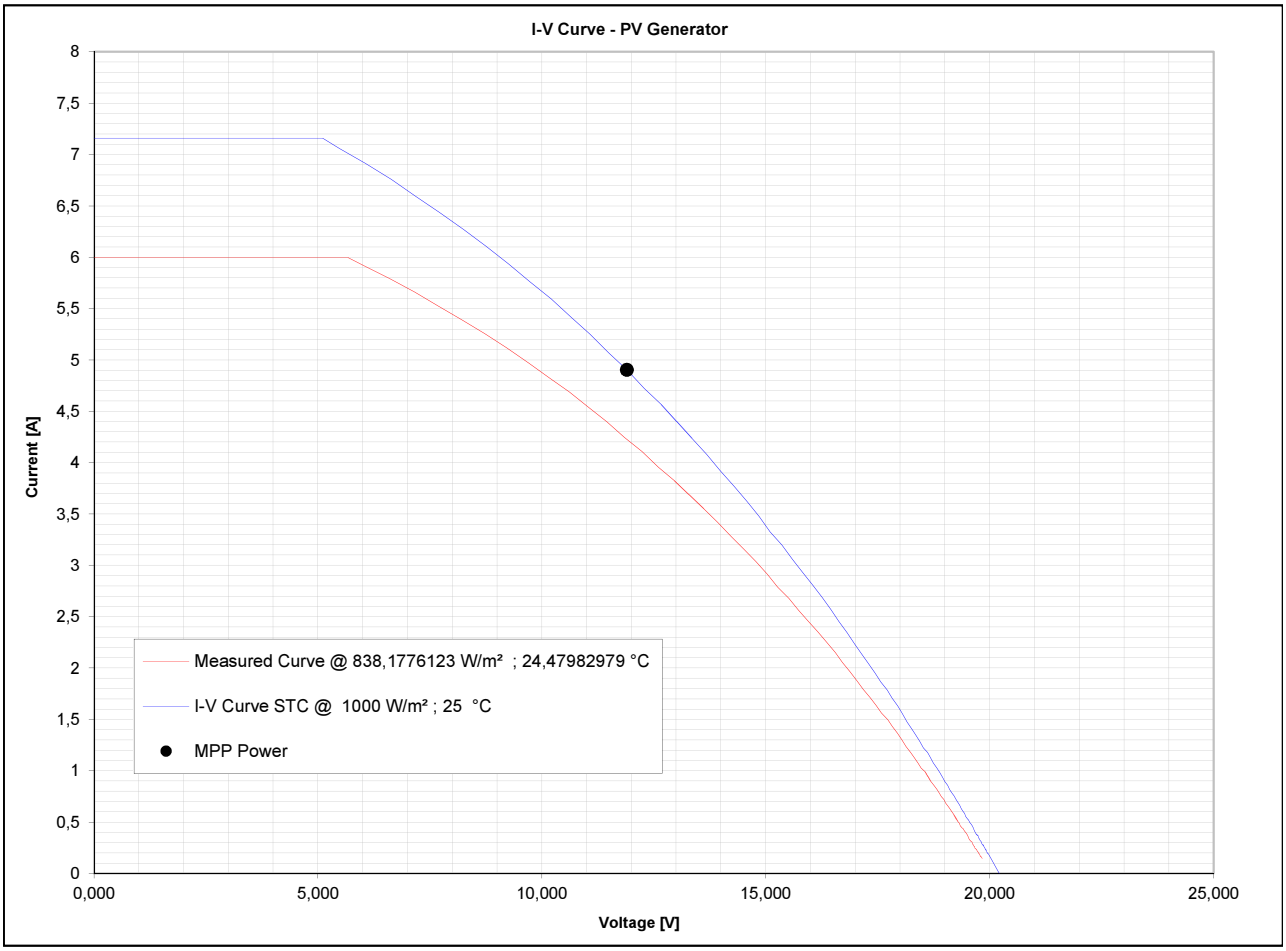
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:04:02**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3899
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	838,1776123
Module Temp. (PT1000)	[°C]	24,47982979
MPP Power	[W]	50,37
MPP Voltage	[V]	11,45
MPP Current	[A]	4,40
OC Voltage	[V]	20,04
SC Current	[A]	6,00
Fill factor	[%]	41,91

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**58,37**
MPP Voltage	[V]	11,90
MPP Current	[A]	4,90
OC Voltage	[V]	20,21
SC Current	[A]	7,16
Fill factor	[%]	40,34



Peak power deviation @ STC	**-76,18%**
Peak power deviation @ STC considering dust	**-**

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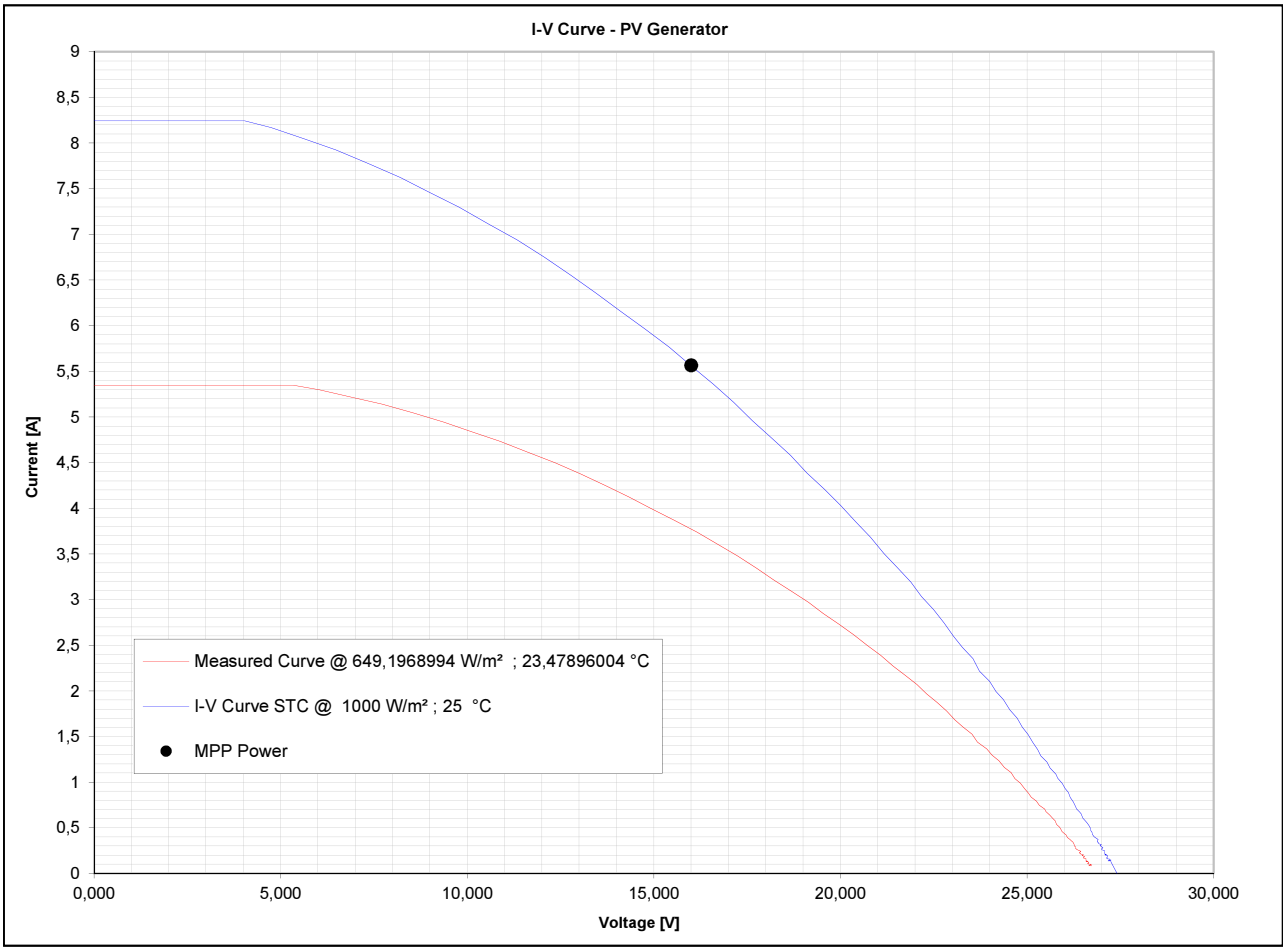
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **17:10:24**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3919
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-260			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	649,1968994
Module Temp. (PT1000)	[°C]	23,47896004
MPP Power	[W]	60,43
MPP Voltage	[V]	16,16
MPP Current	[A]	3,74
OC Voltage	[V]	26,87
SC Current	[A]	5,35
Fill factor	[%]	42,07

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**89,02**
MPP Voltage	[V]	16,00
MPP Current	[A]	5,56
OC Voltage	[V]	27,42
SC Current	[A]	8,24
Fill factor	[%]	39,39



Peak power deviation @ STC	**-63,67%**
Peak power deviation @ STC considering dust	**-**

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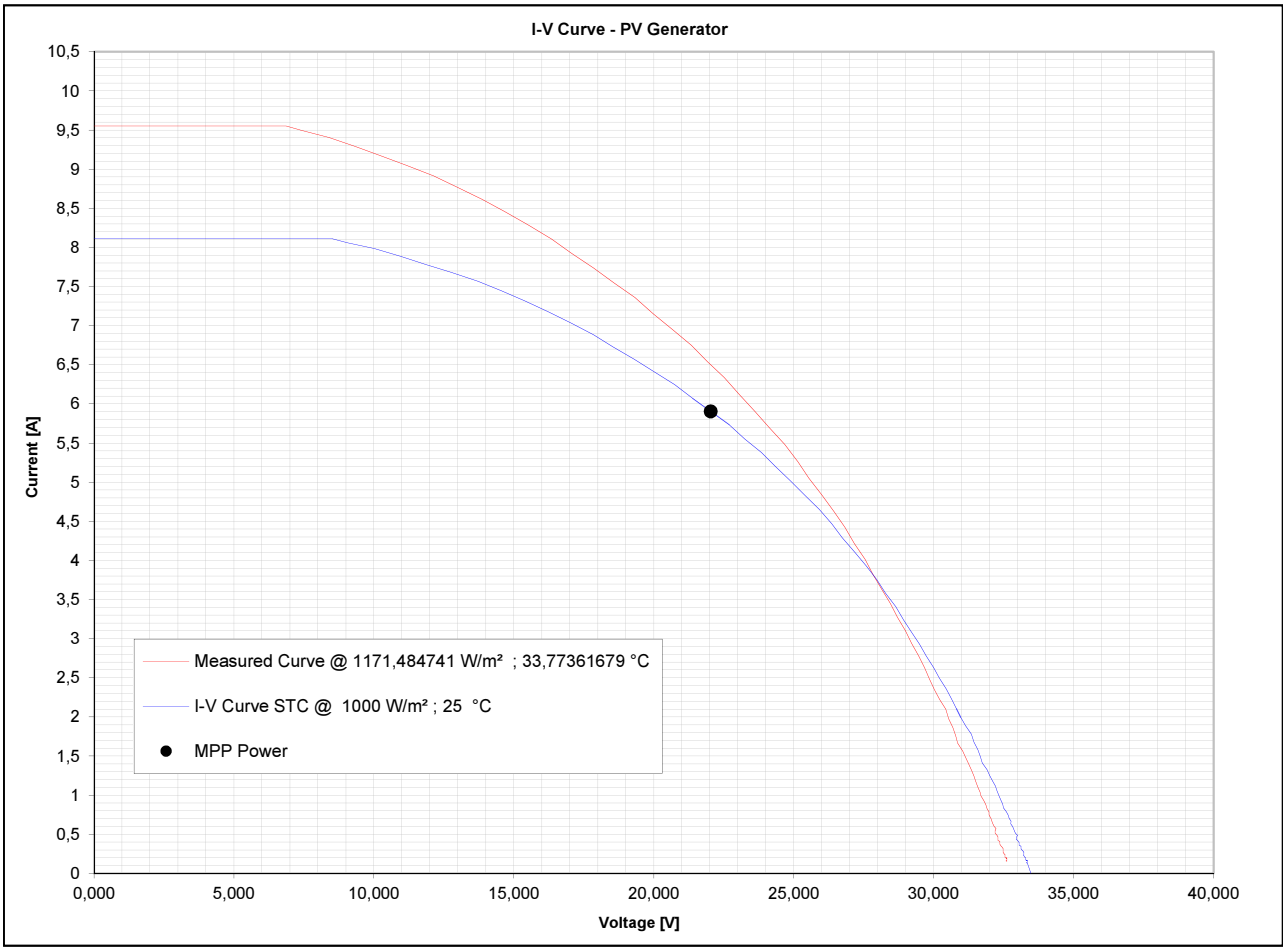
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:55:06**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3919
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1171,484741
Module Temp. (PT1000)	[°C]	33,77361679
MPP Power	[W]	144,04
MPP Voltage	[V]	21,34
MPP Current	[A]	6,75
OC Voltage	[V]	32,76
SC Current	[A]	9,55
Fill factor	[%]	46,03

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**130,11**
MPP Voltage	[V]	22,04
MPP Current	[A]	5,90
OC Voltage	[V]	33,47
SC Current	[A]	8,11
Fill factor	[%]	47,93



Peak power deviation @ STC	**-46,90%**
Peak power deviation @ STC considering dust	**-**

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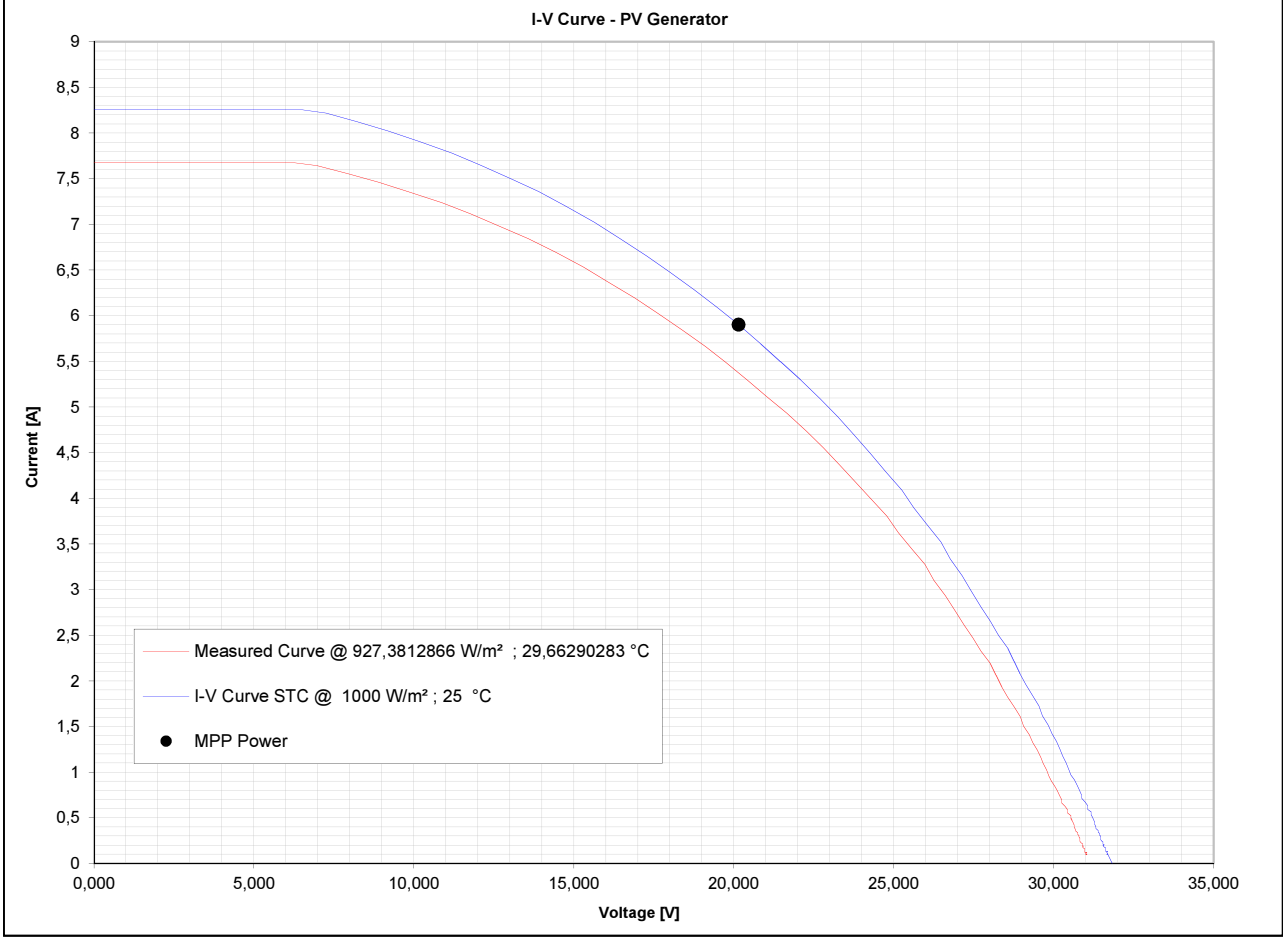
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:54:14**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3919
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	927,3812866
Module Temp. (PT1000)	[°C]	29,66290283
MPP Power	[W]	108,42
MPP Voltage	[V]	19,76
MPP Current	[A]	5,49
OC Voltage	[V]	31,17
SC Current	[A]	7,68
Fill factor	[%]	45,29

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**118,90**
MPP Voltage	[V]	20,15
MPP Current	[A]	5,90
OC Voltage	[V]	31,83
SC Current	[A]	8,26
Fill factor	[%]	45,24



Peak power deviation @ STC	**-51,47%**
Peak power deviation @ STC considering dust	**-**

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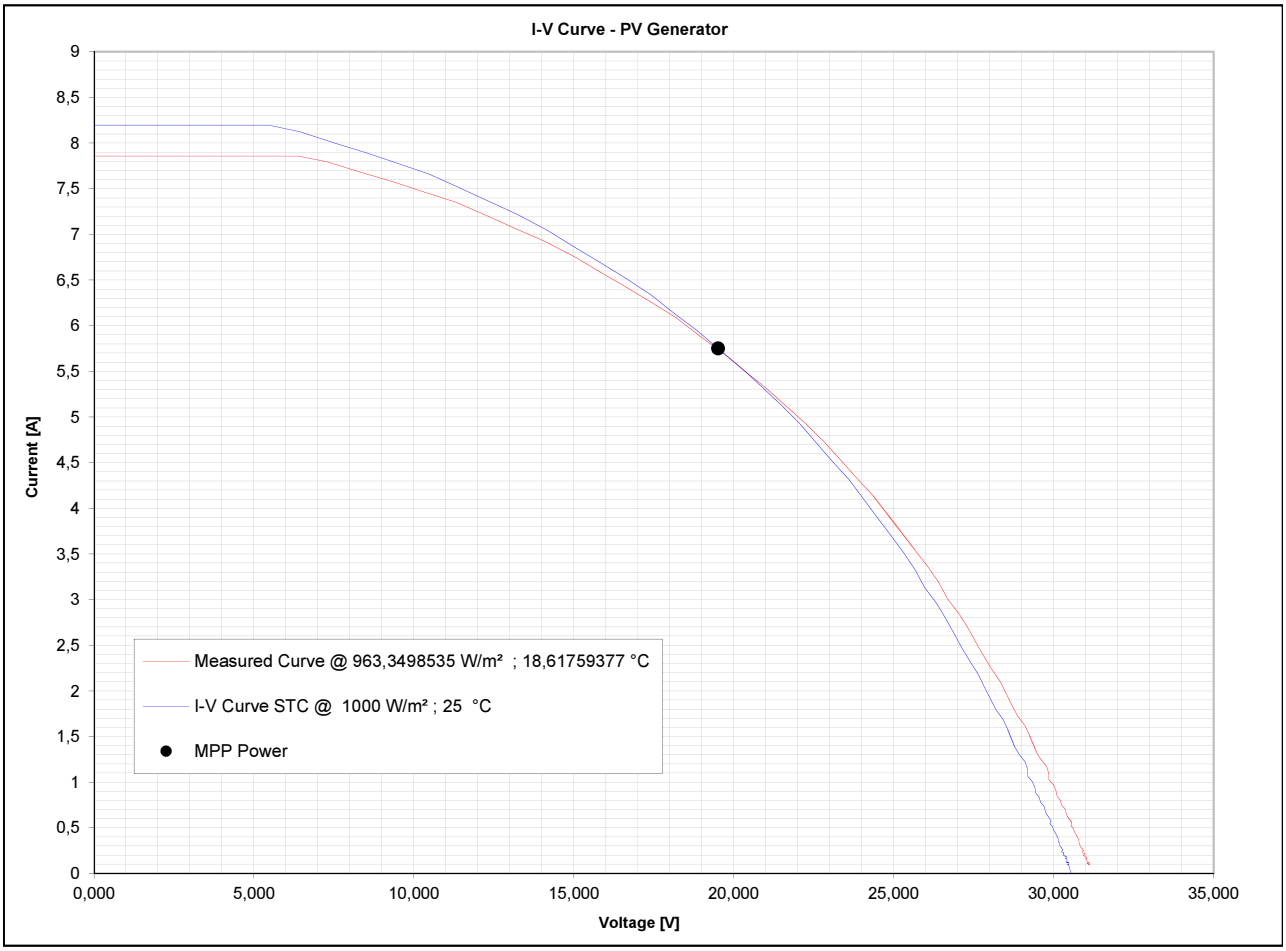
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:33:06**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3919
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	963,3498535
Module Temp. (PT1000)	[°C]	18,61759377
MPP Power	[W]	112,10
MPP Voltage	[V]	19,65
MPP Current	[A]	5,71
OC Voltage	[V]	31,19
SC Current	[A]	7,86
Fill factor	[%]	45,74

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**112,16**
MPP Voltage	[V]	19,51
MPP Current	[A]	5,75
OC Voltage	[V]	30,55
SC Current	[A]	8,19
Fill factor	[%]	44,83



Peak power deviation @ STC	**-54,22%**
Peak power deviation @ STC considering dust	**-**

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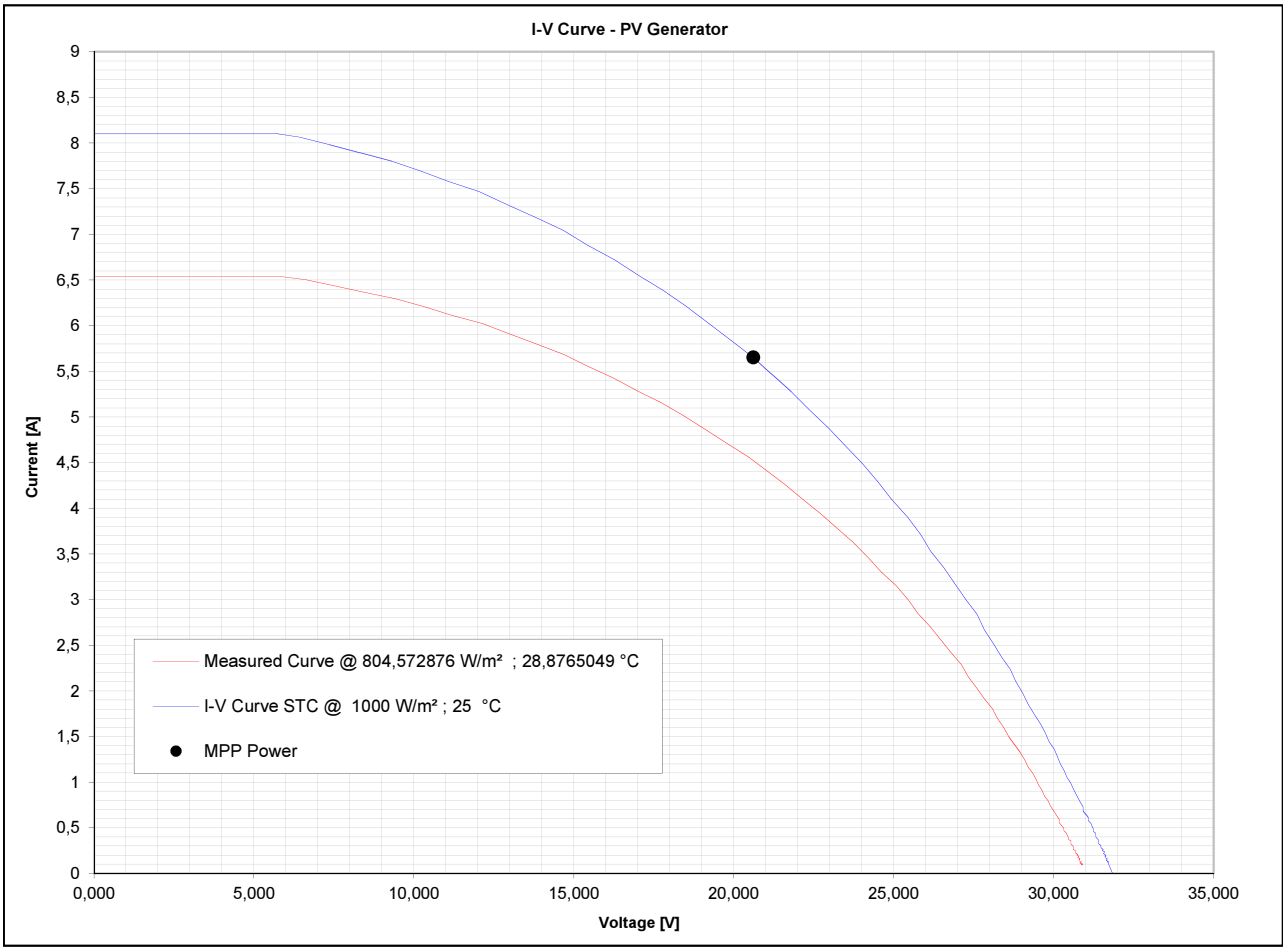
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:18:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3919
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	804,572876
Module Temp. (PT1000)	[°C]	28,8765049
MPP Power	[W]	93,34
MPP Voltage	[V]	20,48
MPP Current	[A]	4,56
OC Voltage	[V]	31,01
SC Current	[A]	6,54
Fill factor	[%]	46,03

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**116,48**
MPP Voltage	[V]	20,61
MPP Current	[A]	5,65
OC Voltage	[V]	31,85
SC Current	[A]	8,11
Fill factor	[%]	45,12



Peak power deviation @ STC	**-52,46%**
Peak power deviation @ STC considering dust	**-**

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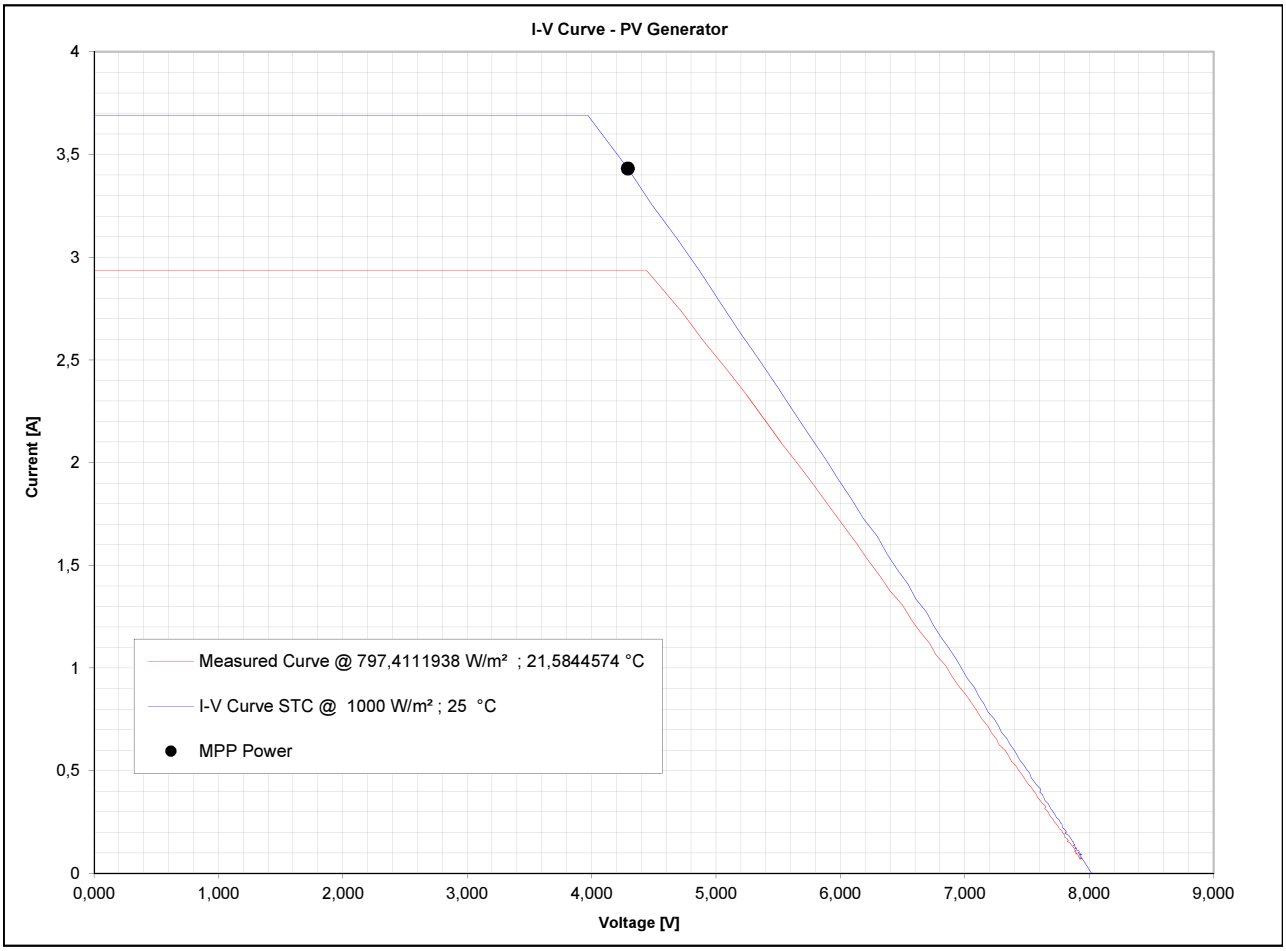
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **17:05:18**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3951
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-256			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	797,4111938
Module Temp. (PT1000)	[°C]	21,5844574
MPP Power	[W]	13,04
MPP Voltage	[V]	4,44
MPP Current	[A]	2,94
OC Voltage	[V]	8,01
SC Current	[A]	2,94
Fill factor	[%]	55,46

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**14,73**
MPP Voltage	[V]	4,29
MPP Current	[A]	3,43
OC Voltage	[V]	8,02
SC Current	[A]	3,69
Fill factor	[%]	49,76



Peak power deviation @ STC	**-93,99%**
Peak power deviation @ STC considering dust	**-**

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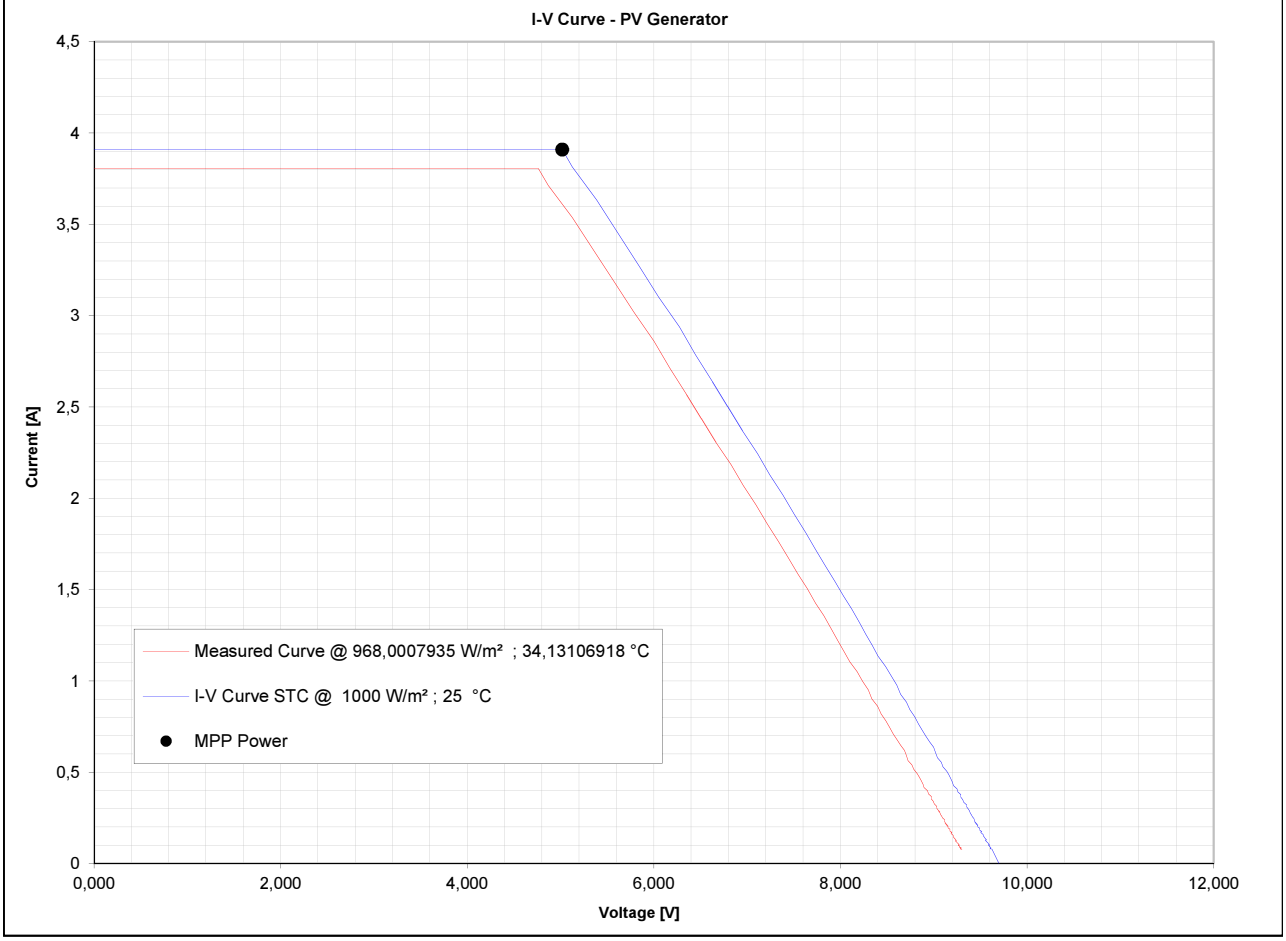
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **14:02:42**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3951
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	968,0007935
Module Temp. (PT1000)	[°C]	34,13106918
MPP Power	[W]	18,14
MPP Voltage	[V]	5,13
MPP Current	[A]	3,54
OC Voltage	[V]	9,38
SC Current	[A]	3,81
Fill factor	[%]	50,83

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**19,63**
MPP Voltage	[V]	5,02
MPP Current	[A]	3,91
OC Voltage	[V]	9,70
SC Current	[A]	3,91
Fill factor	[%]	51,77



Peak power deviation @ STC	**-91,99%**
Peak power deviation @ STC considering dust	**-**

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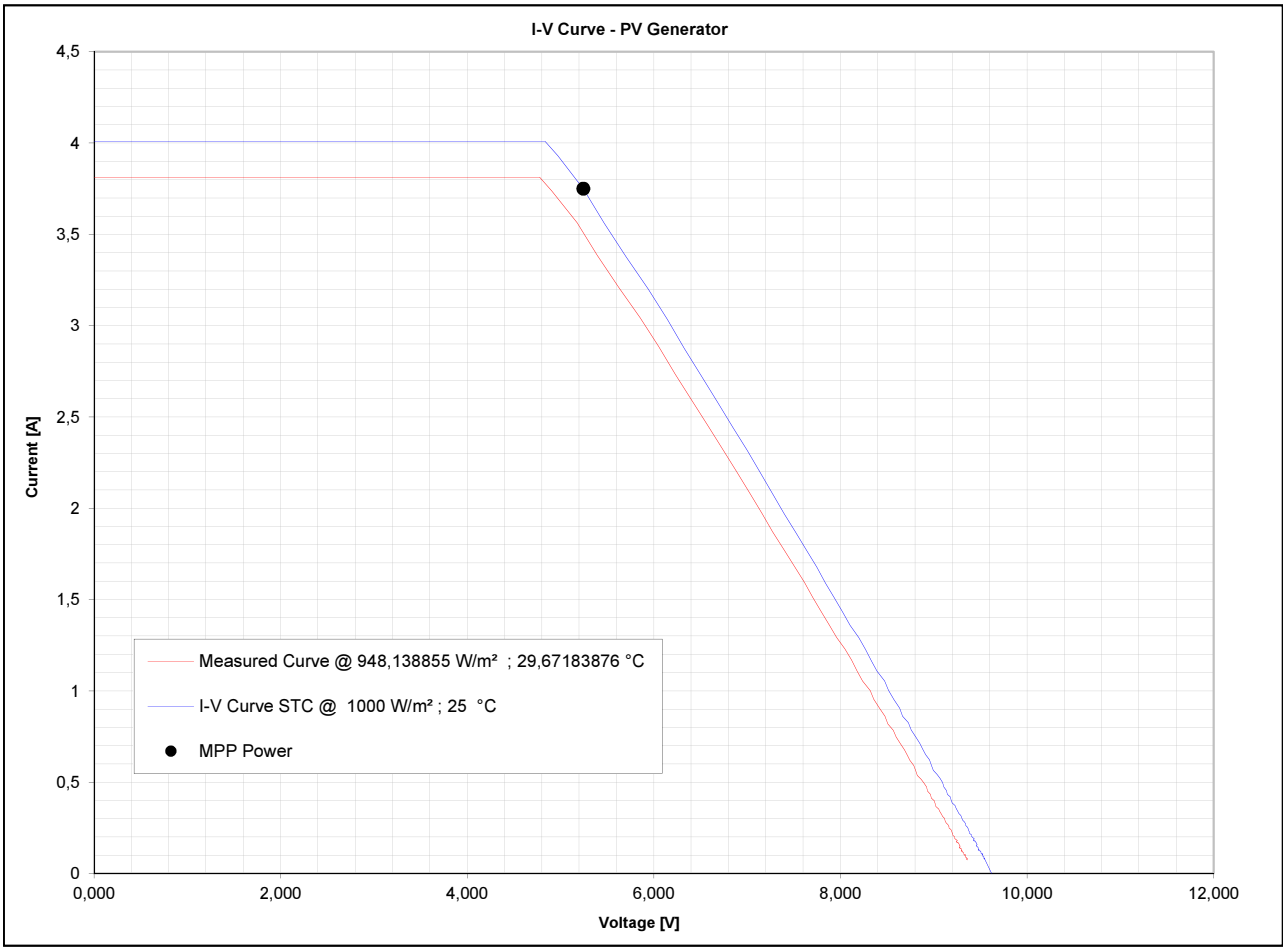
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:58:20**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3951
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	948,138855
Module Temp. (PT1000)	[°C]	29,67183876
MPP Power	[W]	18,46
MPP Voltage	[V]	5,18
MPP Current	[A]	3,56
OC Voltage	[V]	9,44
SC Current	[A]	3,81
Fill factor	[%]	51,30

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**19,67**
MPP Voltage	[V]	5,25
MPP Current	[A]	3,75
OC Voltage	[V]	9,62
SC Current	[A]	4,01
Fill factor	[%]	50,97



Peak power deviation @ STC	**-91,97%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

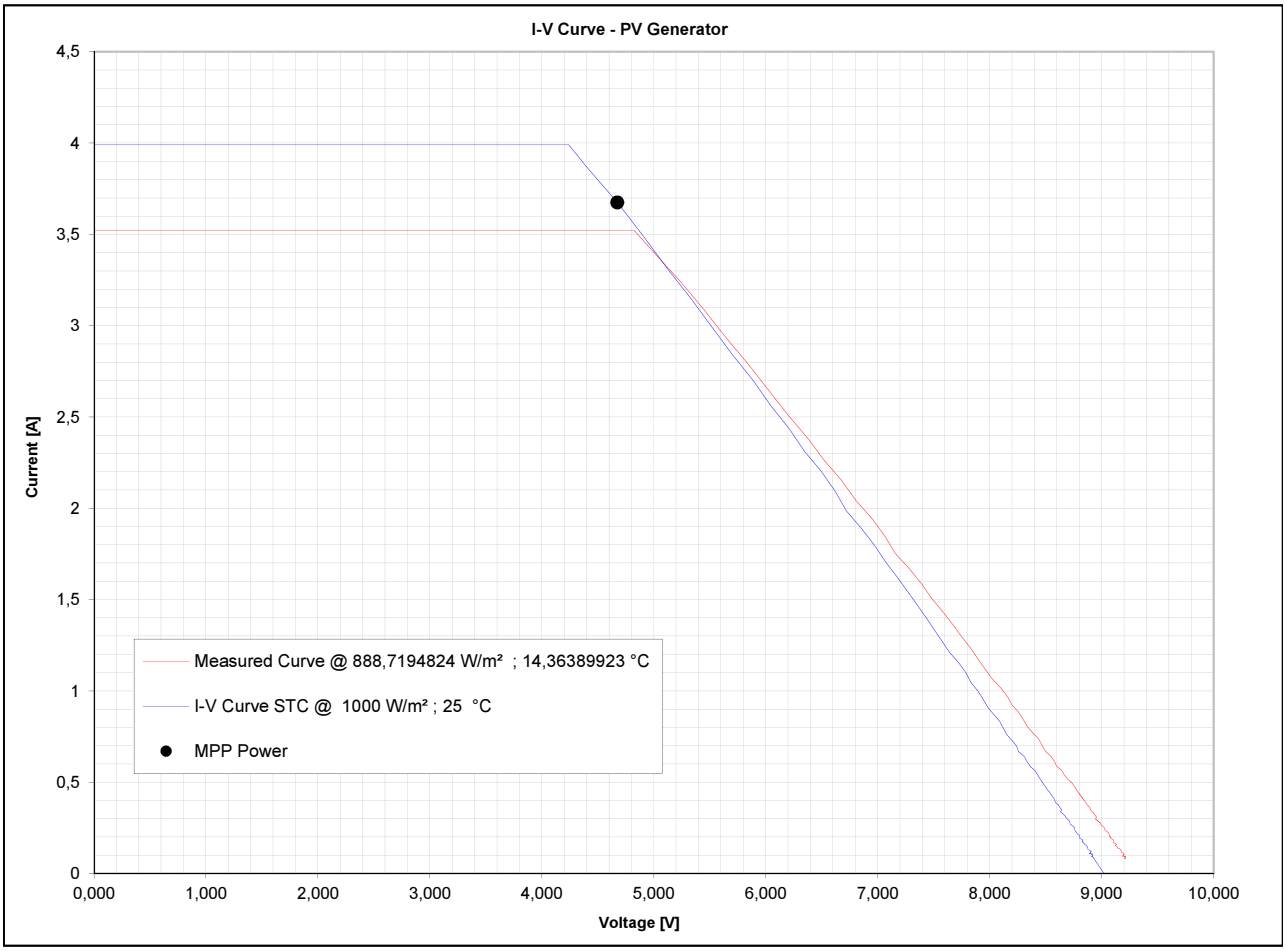
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:29:46**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3951
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	888,7194824
Module Temp. (PT1000)	[°C]	14,36389923
MPP Power	[W]	17,01
MPP Voltage	[V]	4,98
MPP Current	[A]	3,42
OC Voltage	[V]	9,31
SC Current	[A]	3,52
Fill factor	[%]	51,88

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**17,18**
MPP Voltage	[V]	4,68
MPP Current	[A]	3,67
OC Voltage	[V]	9,02
SC Current	[A]	3,99
Fill factor	[%]	47,73



Peak power deviation @ STC	**-92,99%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

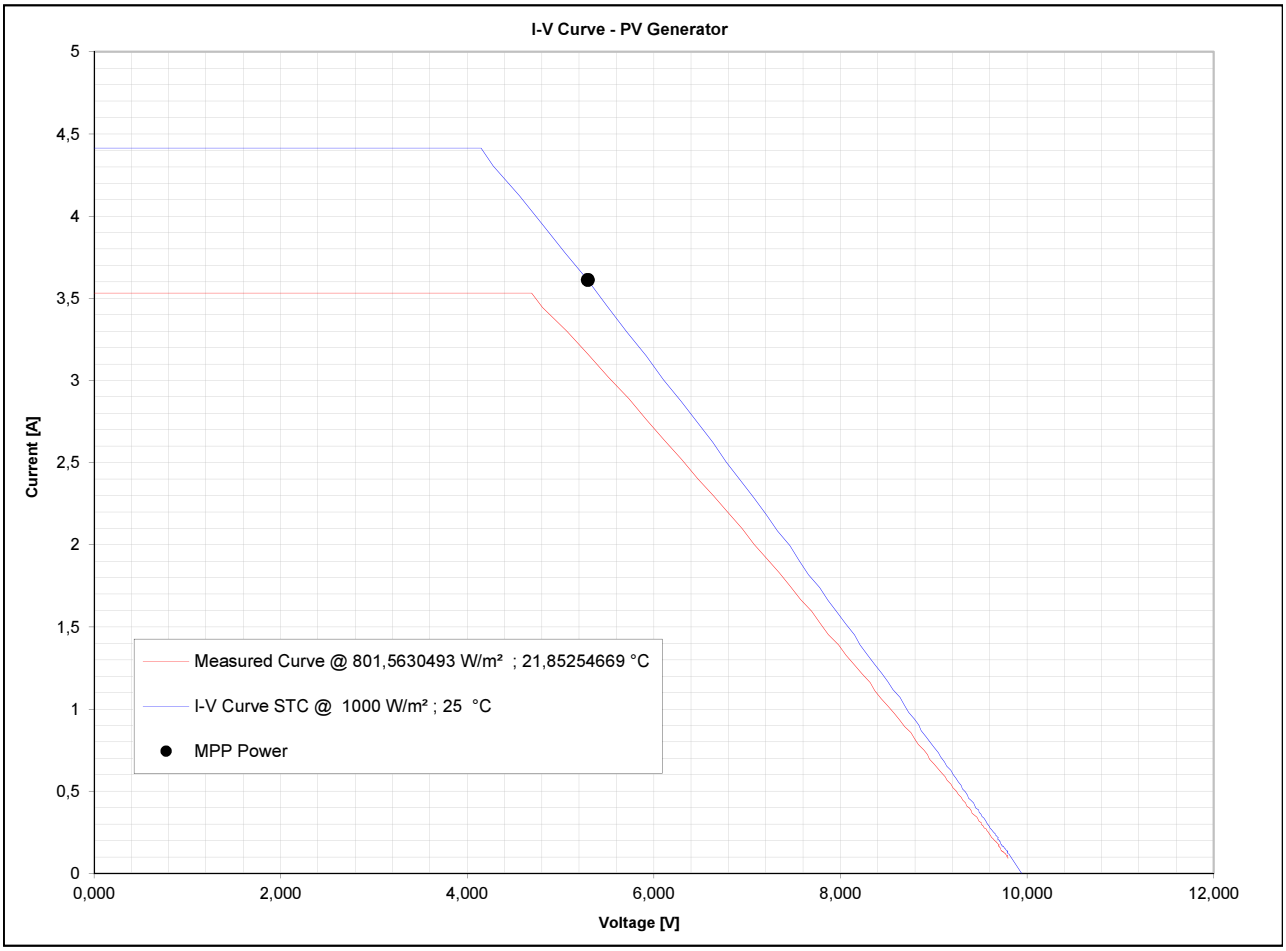
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:25:20**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3951
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	801,5630493
Module Temp. (PT1000)	[°C]	21,85254669
MPP Power	[W]	16,73
MPP Voltage	[V]	5,30
MPP Current	[A]	3,16
OC Voltage	[V]	9,92
SC Current	[A]	3,53
Fill factor	[%]	47,73

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**19,11**
MPP Voltage	[V]	5,29
MPP Current	[A]	3,61
OC Voltage	[V]	9,94
SC Current	[A]	4,41
Fill factor	[%]	43,54



Peak power deviation @ STC	**-92,20%**
Peak power deviation @ STC considering dust	**-**

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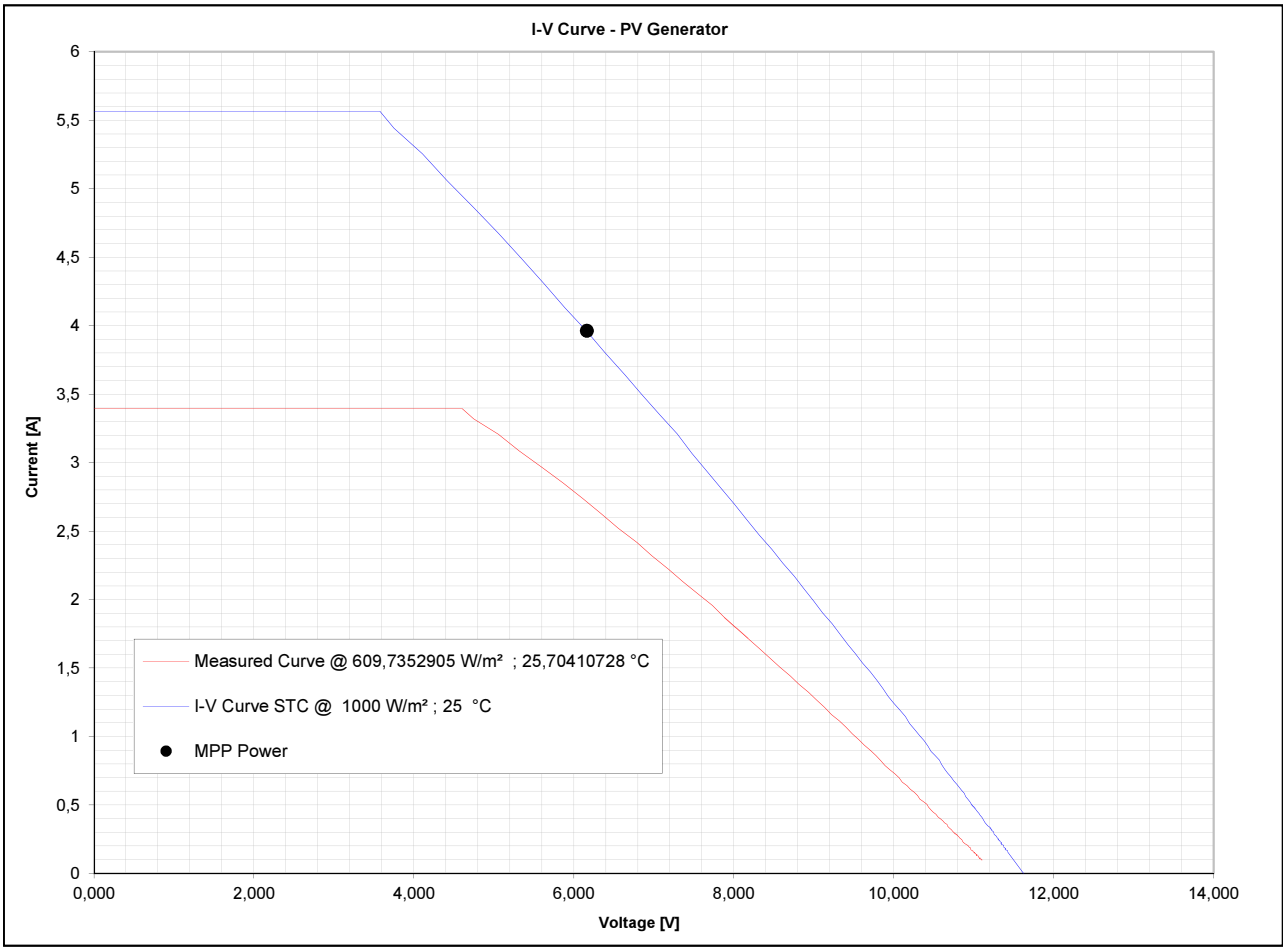
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:41:12**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3959
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-249			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	609,7352905
Module Temp. (PT1000)	[°C]	25,70410728
MPP Power	[W]	16,73
MPP Voltage	[V]	6,11
MPP Current	[A]	2,74
OC Voltage	[V]	11,26
SC Current	[A]	3,39
Fill factor	[%]	43,75

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**24,41**
MPP Voltage	[V]	6,16
MPP Current	[A]	3,96
OC Voltage	[V]	11,63
SC Current	[A]	5,57
Fill factor	[%]	37,72



Peak power deviation @ STC	**-90,04%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

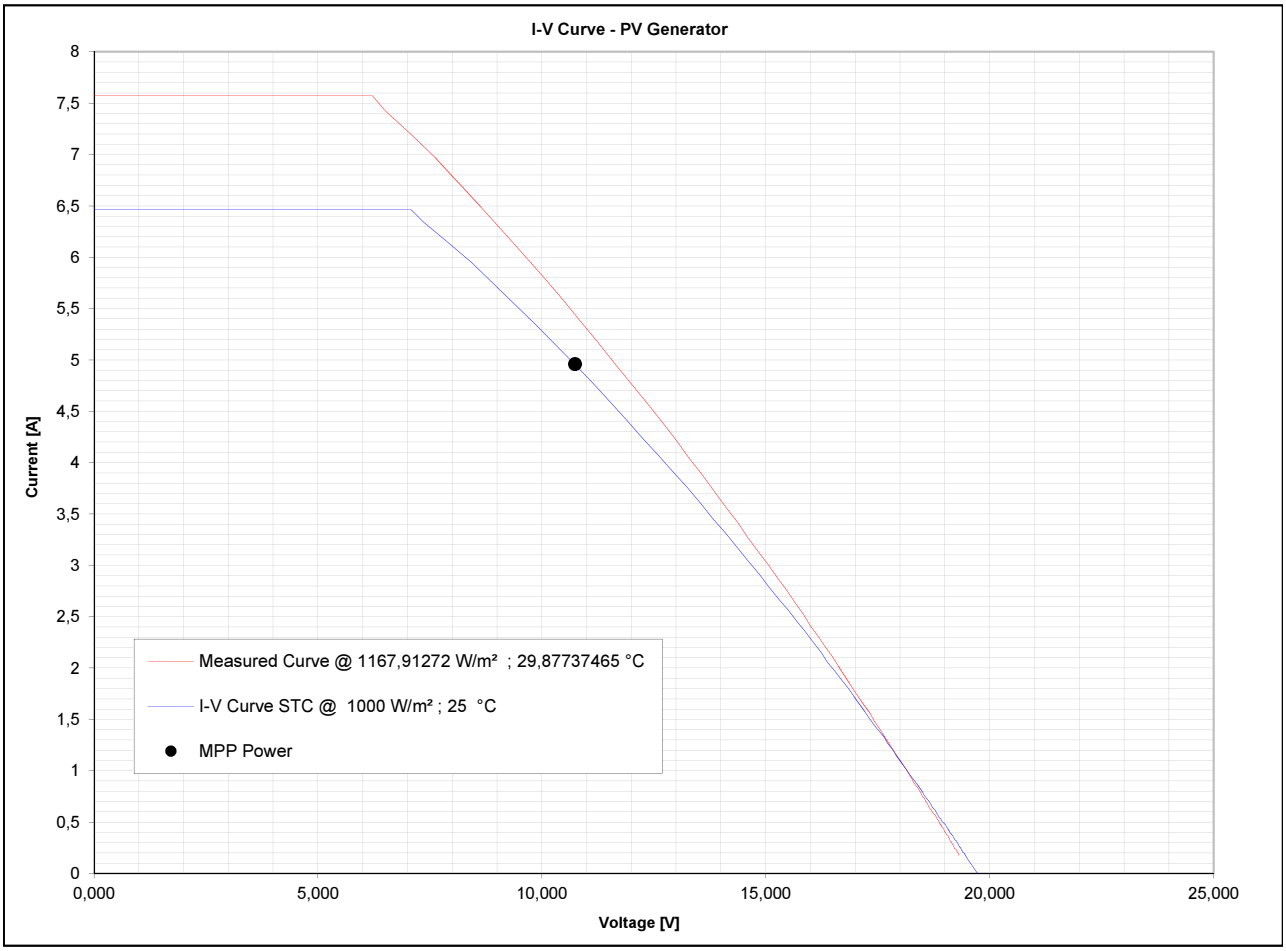
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:44:26**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3959
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1167,91272
Module Temp. (PT1000)	[°C]	29,87737465
MPP Power	[W]	58,50
MPP Voltage	[V]	10,47
MPP Current	[A]	5,59
OC Voltage	[V]	19,57
SC Current	[A]	7,57
Fill factor	[%]	39,47

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**53,24**
MPP Voltage	[V]	10,74
MPP Current	[A]	4,96
OC Voltage	[V]	19,73
SC Current	[A]	6,46
Fill factor	[%]	41,75



Peak power deviation @ STC	**-78,27%**
Peak power deviation @ STC considering dust	**-**

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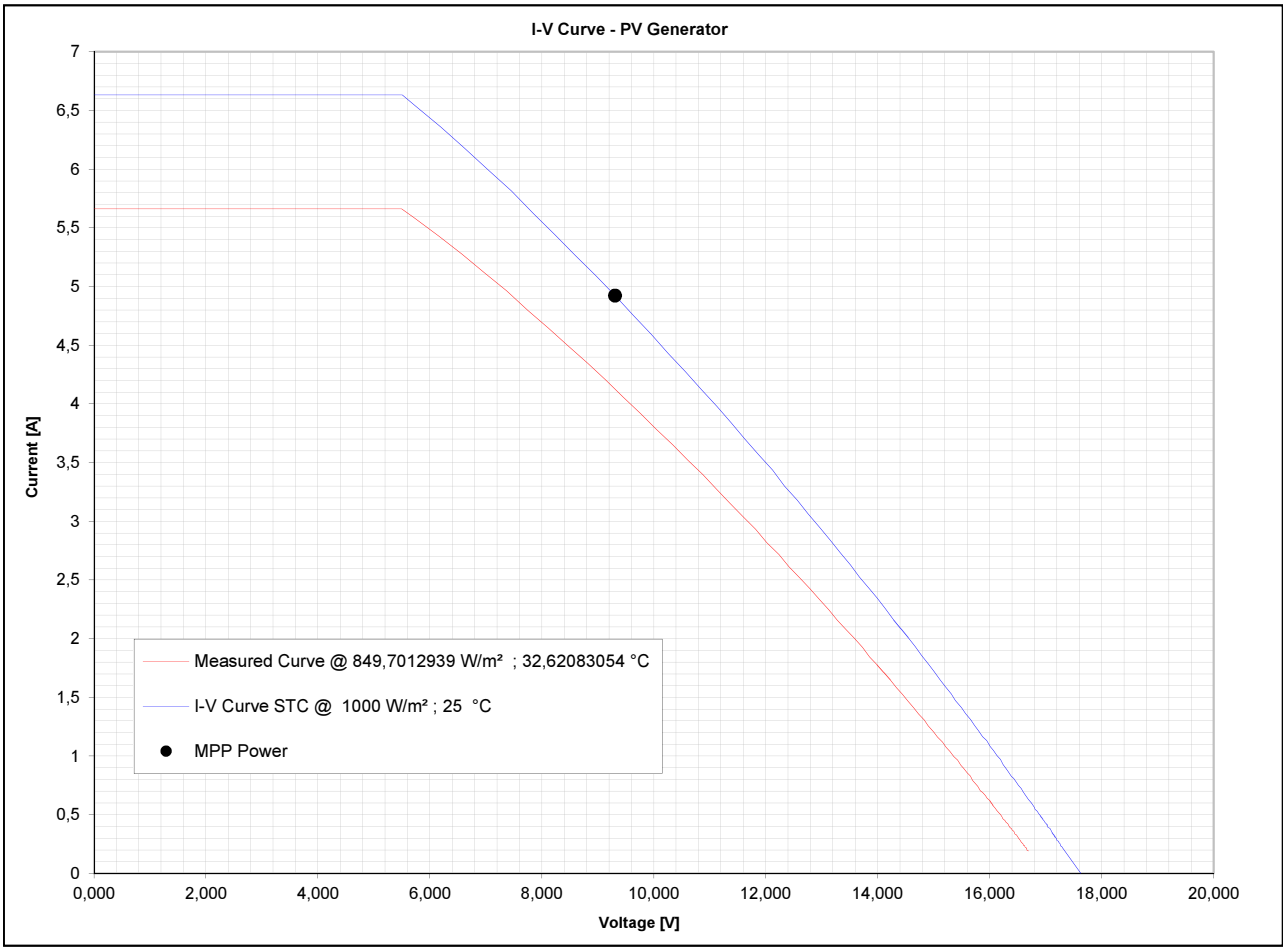
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:46:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3959
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	849,7012939
Module Temp. (PT1000)	[°C]	32,62083054
MPP Power	[W]	38,43
MPP Voltage	[V]	9,14
MPP Current	[A]	4,20
OC Voltage	[V]	17,00
SC Current	[A]	5,66
Fill factor	[%]	39,93

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**45,84**
MPP Voltage	[V]	9,31
MPP Current	[A]	4,92
OC Voltage	[V]	17,63
SC Current	[A]	6,63
Fill factor	[%]	39,21



Peak power deviation @ STC	**-81,29%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

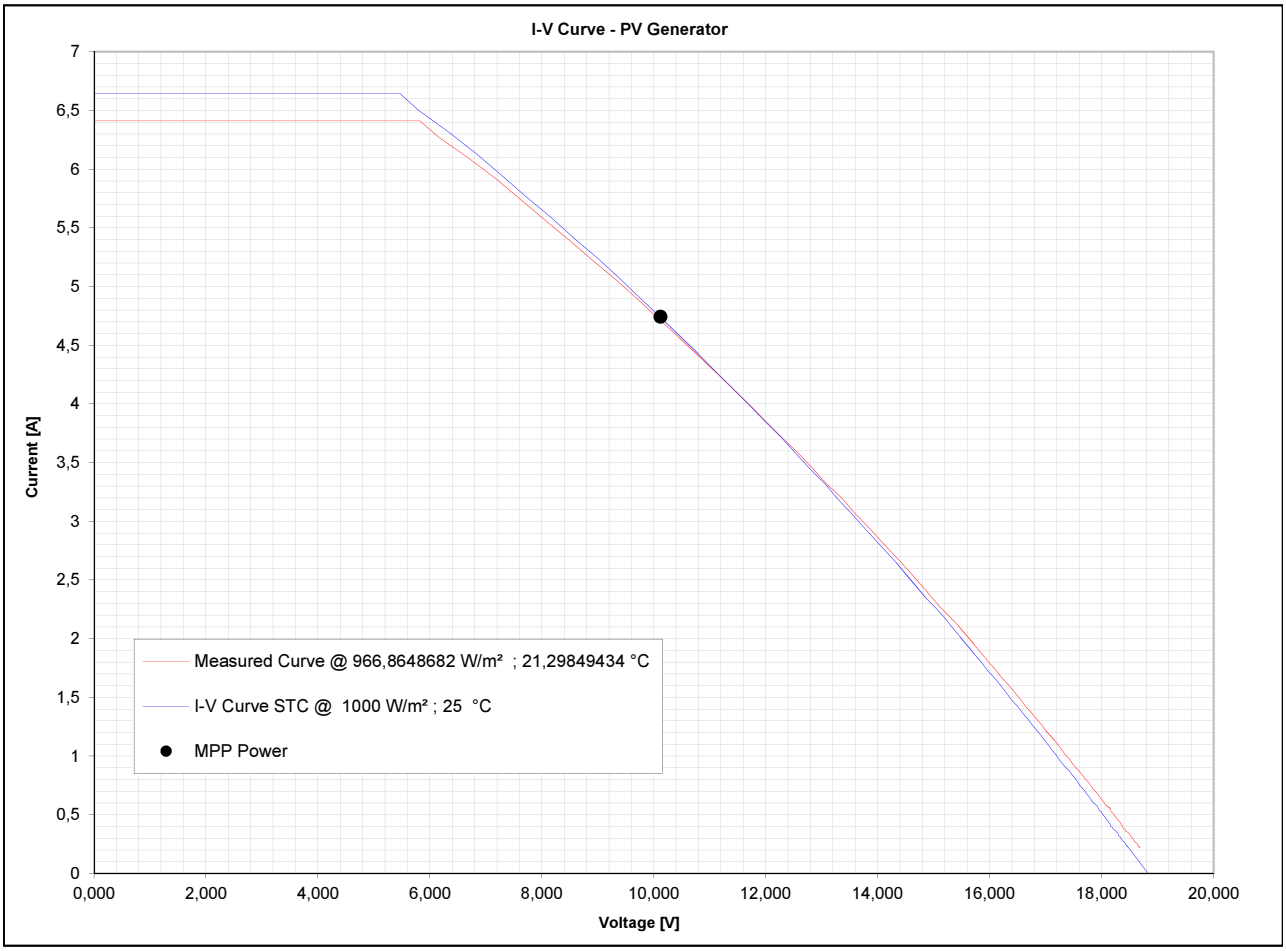
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:38:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3959
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	966,8648682
Module Temp. (PT1000)	[°C]	21,29849434
MPP Power	[W]	47,73
MPP Voltage	[V]	10,44
MPP Current	[A]	4,57
OC Voltage	[V]	19,04
SC Current	[A]	6,41
Fill factor	[%]	39,10

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**47,96**
MPP Voltage	[V]	10,12
MPP Current	[A]	4,74
OC Voltage	[V]	18,83
SC Current	[A]	6,65
Fill factor	[%]	38,33



Peak power deviation @ STC	**-80,42%**
Peak power deviation @ STC considering dust	**-**

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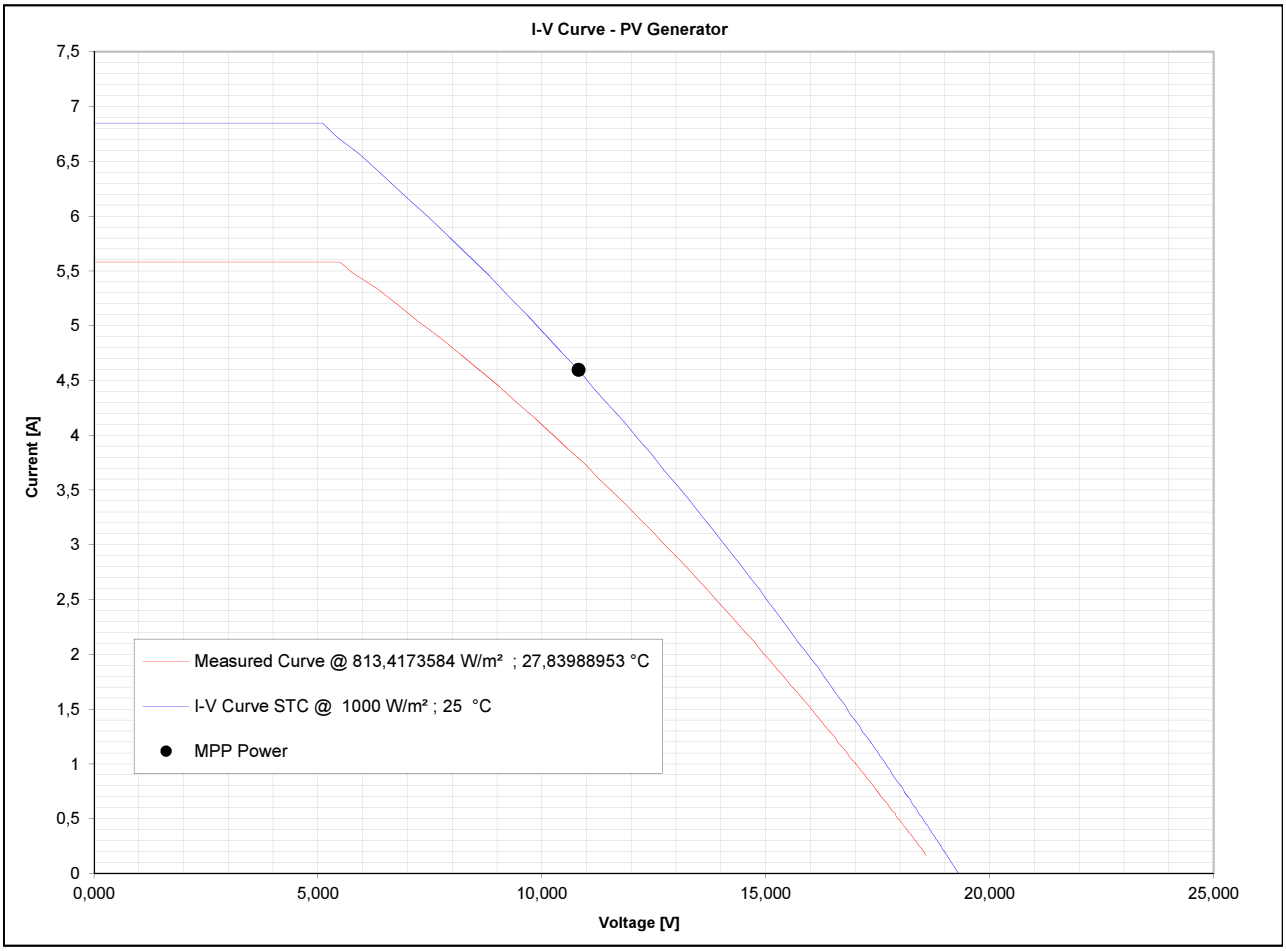
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:10:00**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3959
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	813,4173584
Module Temp. (PT1000)	[°C]	27,83988953
MPP Power	[W]	41,02
MPP Voltage	[V]	10,22
MPP Current	[A]	4,01
OC Voltage	[V]	18,88
SC Current	[A]	5,58
Fill factor	[%]	38,93

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**49,76**
MPP Voltage	[V]	10,82
MPP Current	[A]	4,60
OC Voltage	[V]	19,30
SC Current	[A]	6,85
Fill factor	[%]	37,63



Peak power deviation @ STC	**-79,69%**
Peak power deviation @ STC considering dust	**-**

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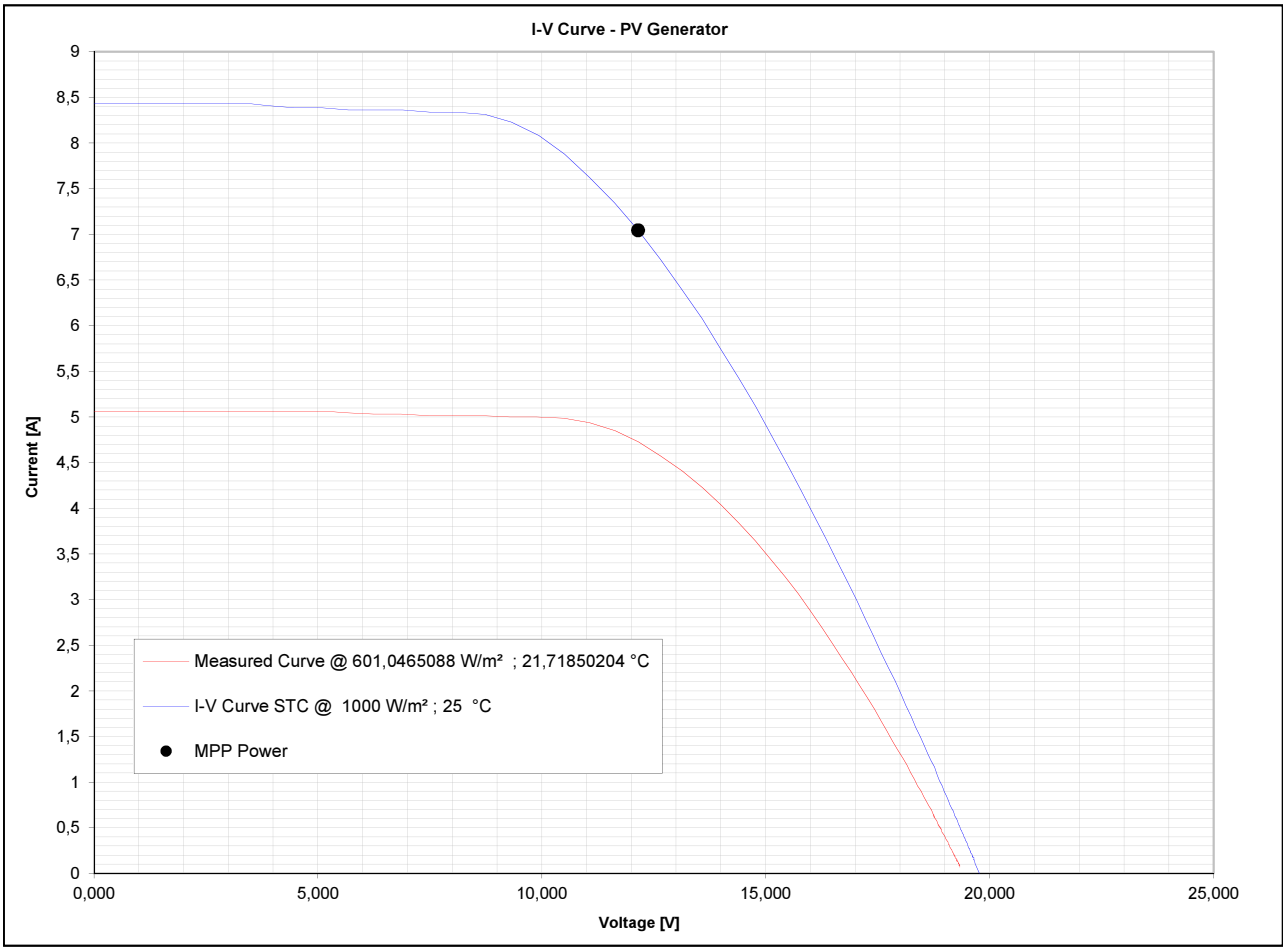
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:27:54**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3960
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-245			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	601,0465088
Module Temp. (PT1000)	[°C]	21,71850204
MPP Power	[W]	57,90
MPP Voltage	[V]	13,14
MPP Current	[A]	4,41
OC Voltage	[V]	19,41
SC Current	[A]	5,06
Fill factor	[%]	58,97

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**85,58**
MPP Voltage	[V]	12,15
MPP Current	[A]	7,04
OC Voltage	[V]	19,77
SC Current	[A]	8,43
Fill factor	[%]	51,31



Peak power deviation @ STC	**-65,07%**
Peak power deviation @ STC considering dust	**-**

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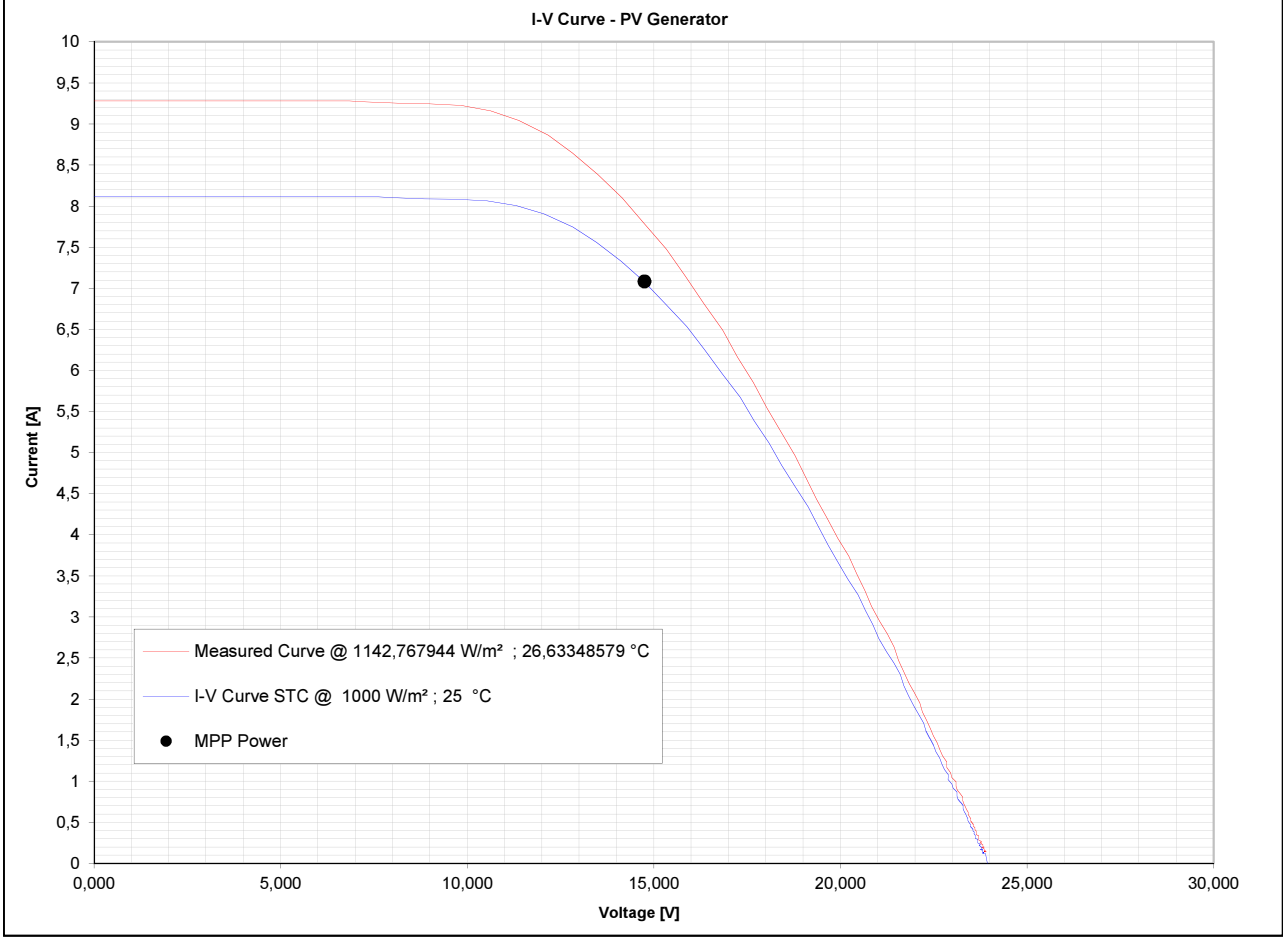
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:42:34**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3960
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1142,767944
Module Temp. (PT1000)	[°C]	26,63348579
MPP Power	[W]	114,79
MPP Voltage	[V]	14,73
MPP Current	[A]	7,80
OC Voltage	[V]	23,99
SC Current	[A]	9,28
Fill factor	[%]	51,55

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**104,45**
MPP Voltage	[V]	14,75
MPP Current	[A]	7,08
OC Voltage	[V]	23,94
SC Current	[A]	8,11
Fill factor	[%]	53,78



Peak power deviation @ STC	**-57,37%**
Peak power deviation @ STC considering dust	**-**

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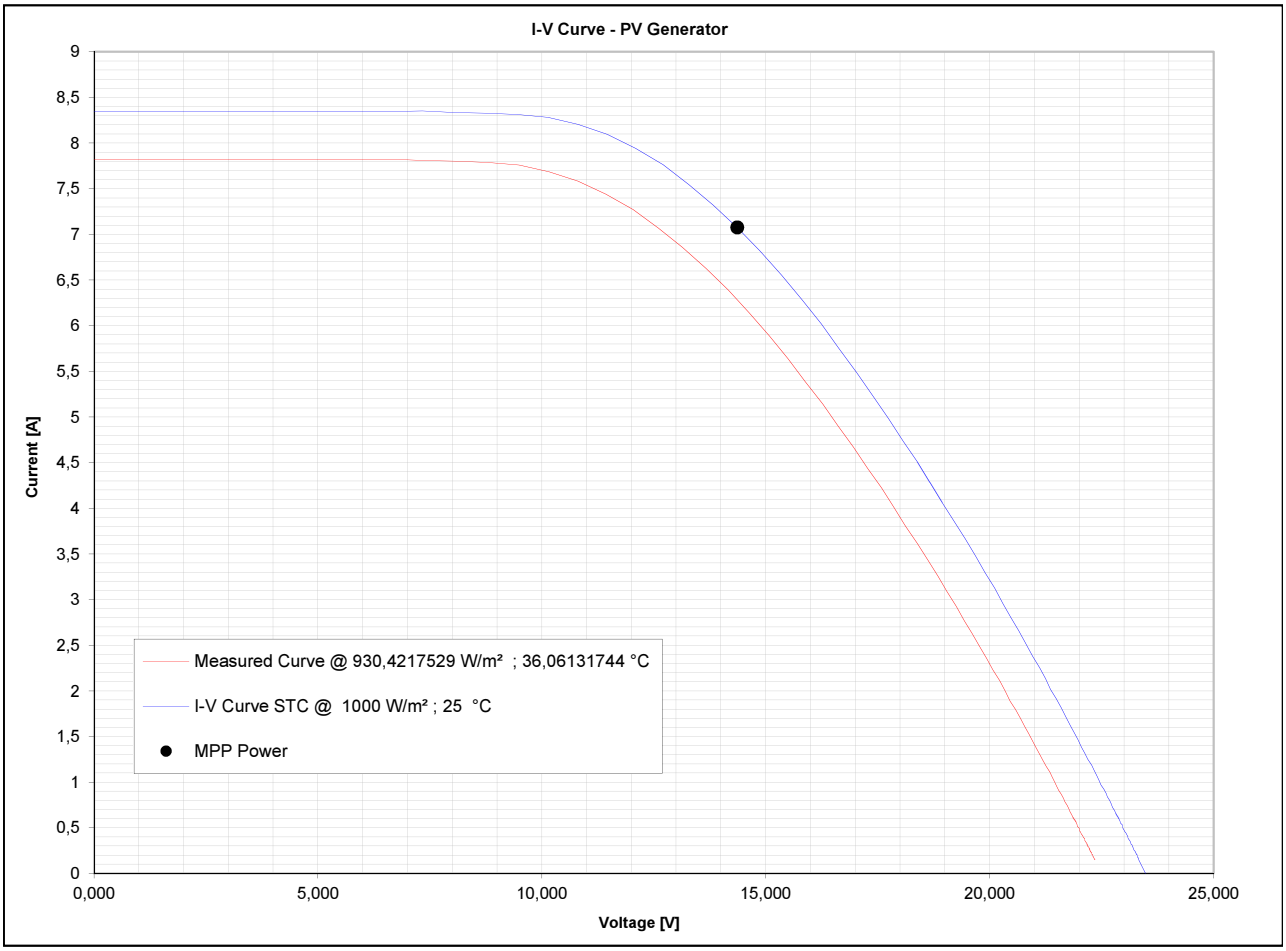
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:42:58**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3960
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	930,4217529
Module Temp. (PT1000)	[°C]	36,06131744
MPP Power	[W]	90,58
MPP Voltage	[V]	13,67
MPP Current	[A]	6,63
OC Voltage	[V]	22,49
SC Current	[A]	7,82
Fill factor	[%]	51,48

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**101,62**
MPP Voltage	[V]	14,37
MPP Current	[A]	7,07
OC Voltage	[V]	23,48
SC Current	[A]	8,35
Fill factor	[%]	51,85



Peak power deviation @ STC	**-58,52%**
Peak power deviation @ STC considering dust	**-**

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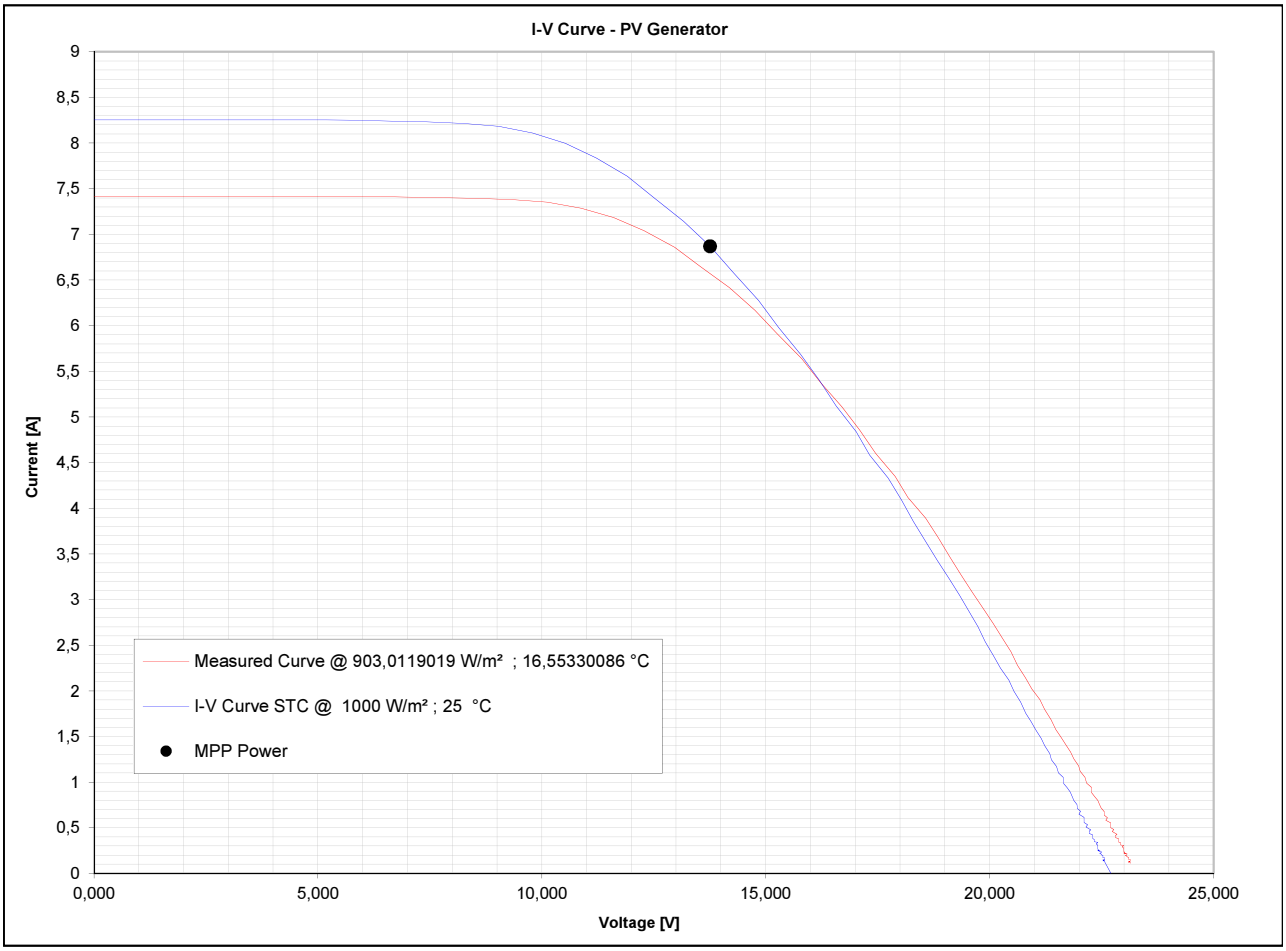
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:30:38**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3960
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	903,0119019
Module Temp. (PT1000)	[°C]	16,55330086
MPP Power	[W]	91,08
MPP Voltage	[V]	14,76
MPP Current	[A]	6,17
OC Voltage	[V]	23,27
SC Current	[A]	7,42
Fill factor	[%]	52,79

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**94,49**
MPP Voltage	[V]	13,76
MPP Current	[A]	6,87
OC Voltage	[V]	22,71
SC Current	[A]	8,25
Fill factor	[%]	50,41



Peak power deviation @ STC	**-61,43%**
Peak power deviation @ STC considering dust	**-**

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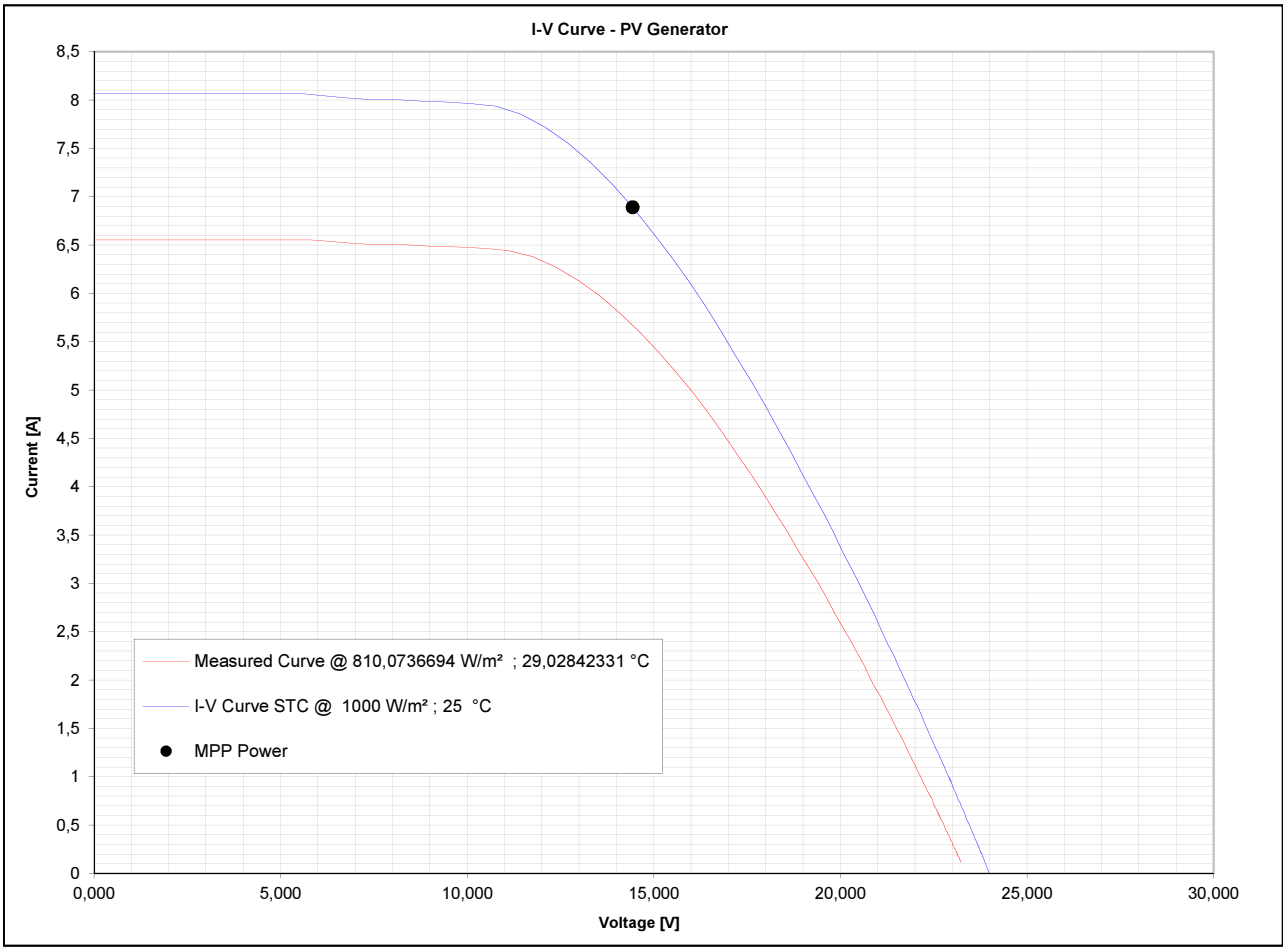
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:13:20**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3960
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	810,0736694
Module Temp. (PT1000)	[°C]	29,02842331
MPP Power	[W]	81,89
MPP Voltage	[V]	14,63
MPP Current	[A]	5,60
OC Voltage	[V]	23,36
SC Current	[A]	6,55
Fill factor	[%]	53,48

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**99,47**
MPP Voltage	[V]	14,44
MPP Current	[A]	6,89
OC Voltage	[V]	23,99
SC Current	[A]	8,07
Fill factor	[%]	51,37



Peak power deviation @ STC	**-59,40%**
Peak power deviation @ STC considering dust	**-**

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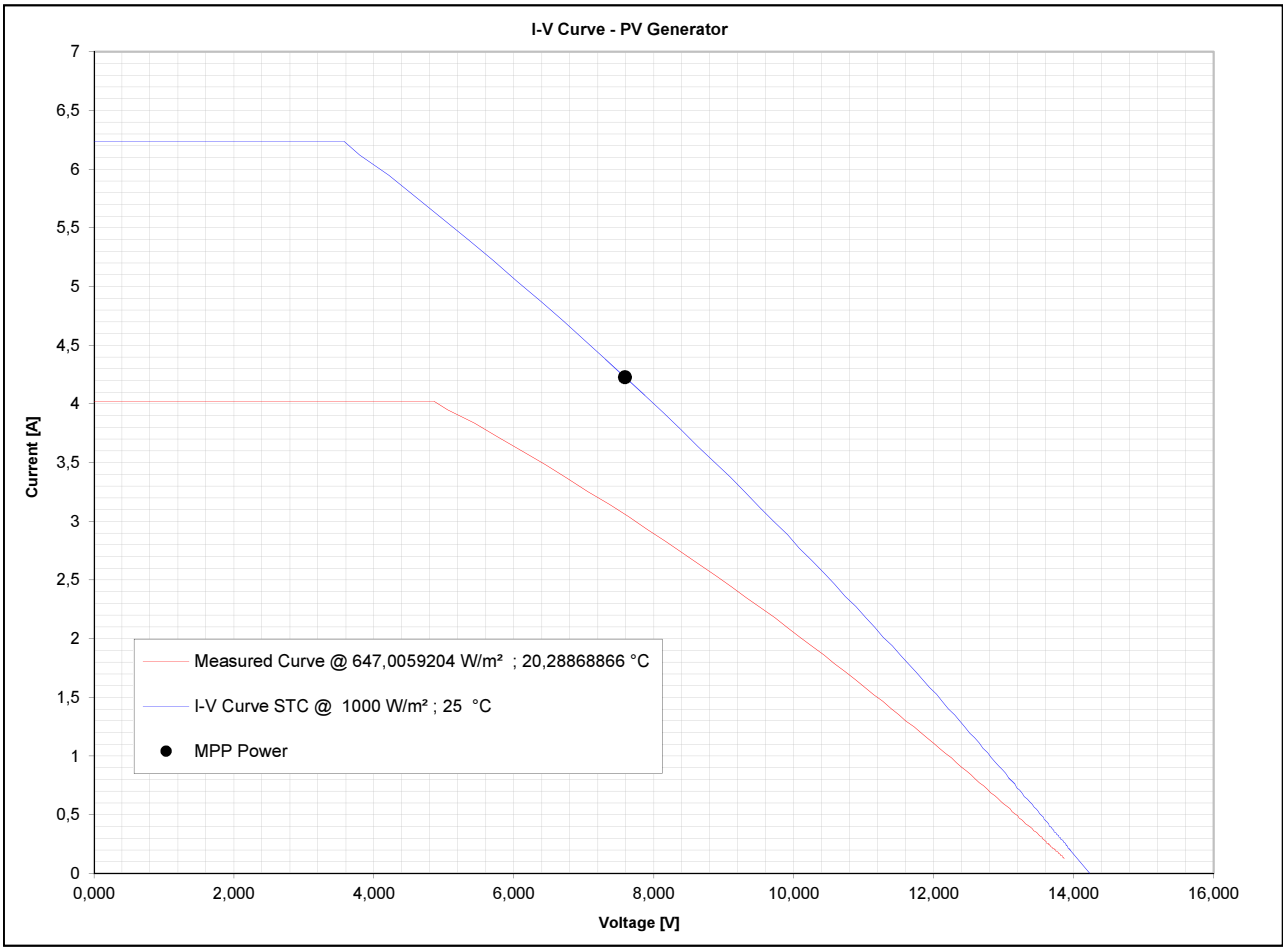
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **16:38:46**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3977
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-254			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	647,0059204
Module Temp. (PT1000)	[°C]	20,28868866
MPP Power	[W]	23,21
MPP Voltage	[V]	7,64
MPP Current	[A]	3,04
OC Voltage	[V]	14,10
SC Current	[A]	4,02
Fill factor	[%]	40,92

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**32,08**
MPP Voltage	[V]	7,59
MPP Current	[A]	4,23
OC Voltage	[V]	14,23
SC Current	[A]	6,24
Fill factor	[%]	36,15



Peak power deviation @ STC	**-86,90%**
Peak power deviation @ STC considering dust	**-**

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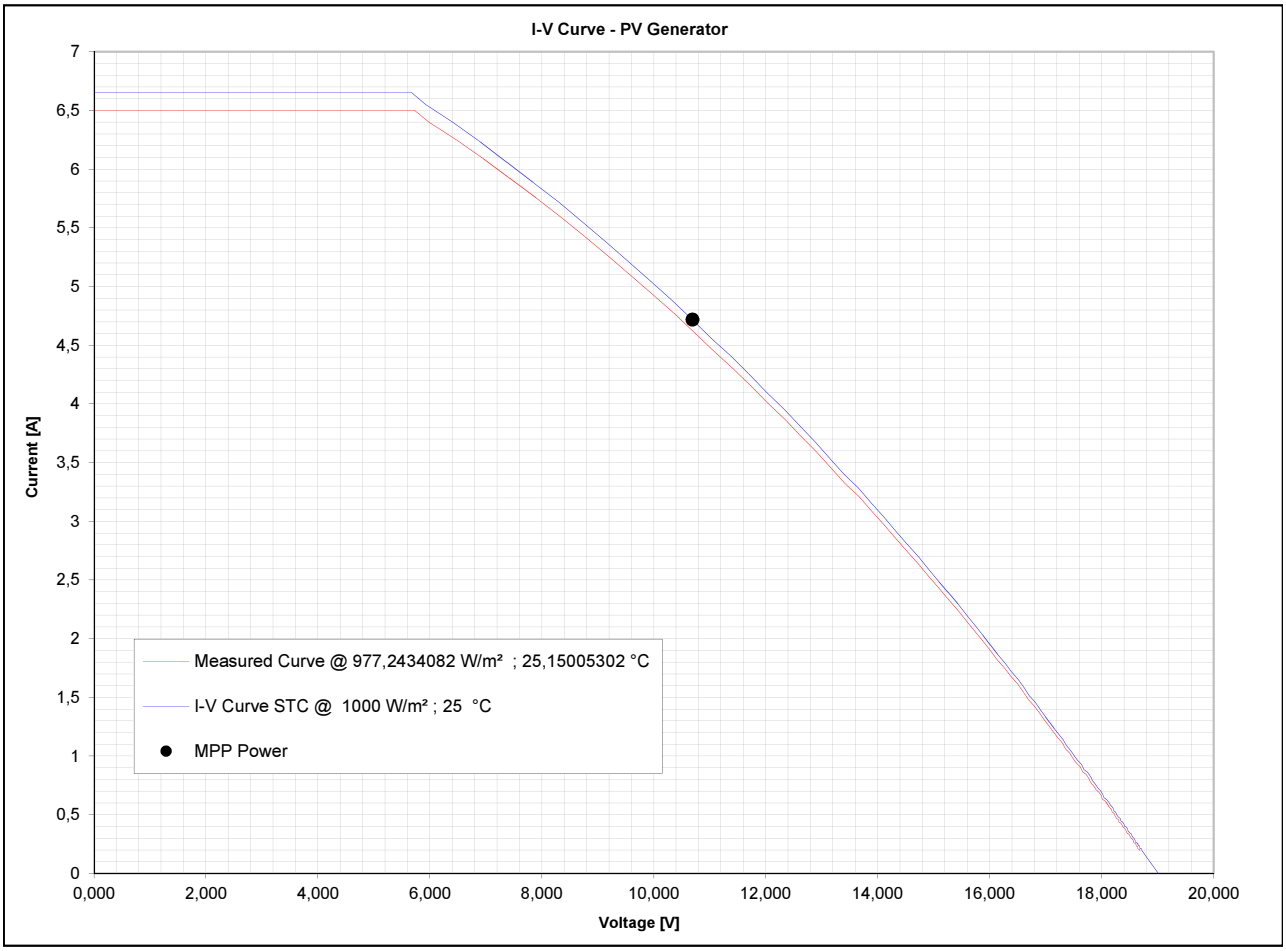
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **15:45:02**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3977
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	977,2434082
Module Temp. (PT1000)	[°C]	25,15005302
MPP Power	[W]	49,44
MPP Voltage	[V]	10,37
MPP Current	[A]	4,77
OC Voltage	[V]	18,97
SC Current	[A]	6,50
Fill factor	[%]	40,07

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**50,43**
MPP Voltage	[V]	10,69
MPP Current	[A]	4,72
OC Voltage	[V]	19,01
SC Current	[A]	6,65
Fill factor	[%]	39,87



Peak power deviation @ STC	**-79,42%**
Peak power deviation @ STC considering dust	**-**

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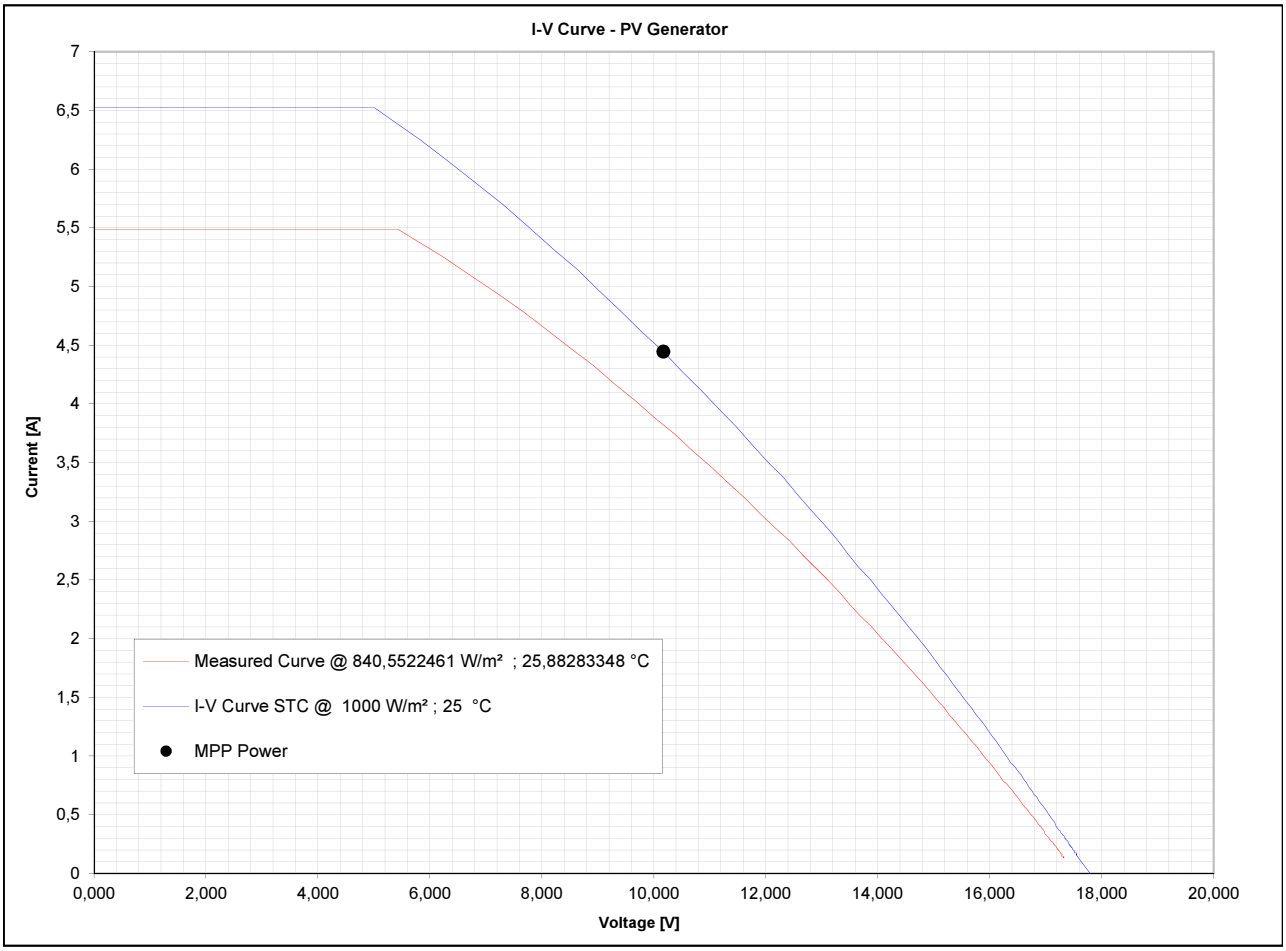
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:29:04**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3977
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	840,5522461
Module Temp. (PT1000)	[°C]	25,88283348
MPP Power	[W]	38,93
MPP Voltage	[V]	9,68
MPP Current	[A]	4,02
OC Voltage	[V]	17,56
SC Current	[A]	5,49
Fill factor	[%]	40,41

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**45,22**
MPP Voltage	[V]	10,17
MPP Current	[A]	4,45
OC Voltage	[V]	17,79
SC Current	[A]	6,52
Fill factor	[%]	38,95



Peak power deviation @ STC	**-81,54%**
Peak power deviation @ STC considering dust	**-**

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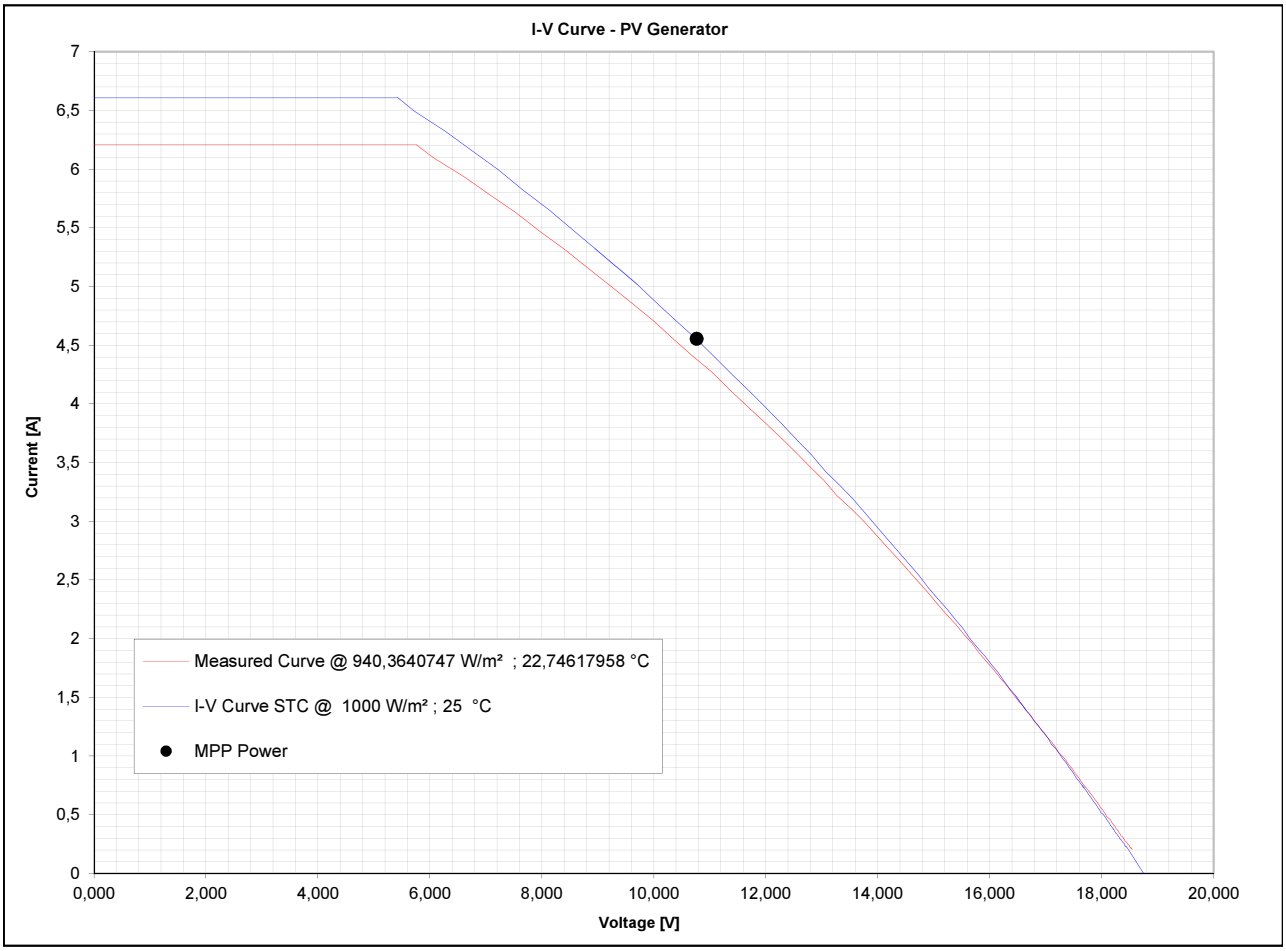
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:43:32**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		3977
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	940,3640747
Module Temp. (PT1000)	[°C]	22,74617958
MPP Power	[W]	47,16
MPP Voltage	[V]	10,69
MPP Current	[A]	4,41
OC Voltage	[V]	18,83
SC Current	[A]	6,21
Fill factor	[%]	40,32

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**49,01**
MPP Voltage	[V]	10,76
MPP Current	[A]	4,55
OC Voltage	[V]	18,75
SC Current	[A]	6,61
Fill factor	[%]	39,52



Peak power deviation @ STC	**-80,00%**
Peak power deviation @ STC considering dust	**-**

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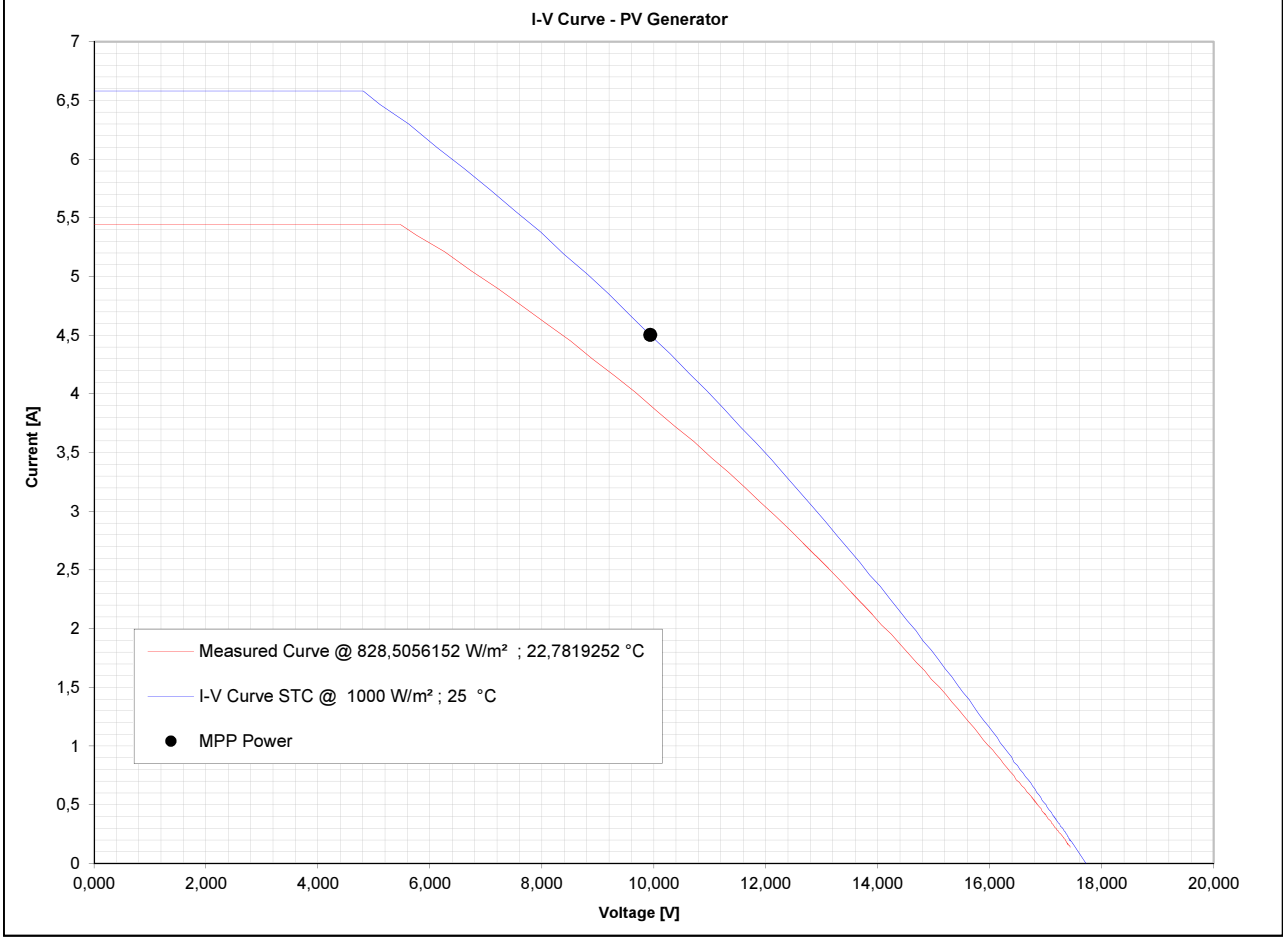
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:03:06**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		3977
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	828,5056152
Module Temp. (PT1000)	[°C]	22,7819252
MPP Power	[W]	38,82
MPP Voltage	[V]	9,67
MPP Current	[A]	4,01
OC Voltage	[V]	17,66
SC Current	[A]	5,44
Fill factor	[%]	40,38

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**44,74**
MPP Voltage	[V]	9,94
MPP Current	[A]	4,50
OC Voltage	[V]	17,72
SC Current	[A]	6,58
Fill factor	[%]	38,37



Peak power deviation @ STC	**-81,74%**
Peak power deviation @ STC considering dust	**-**

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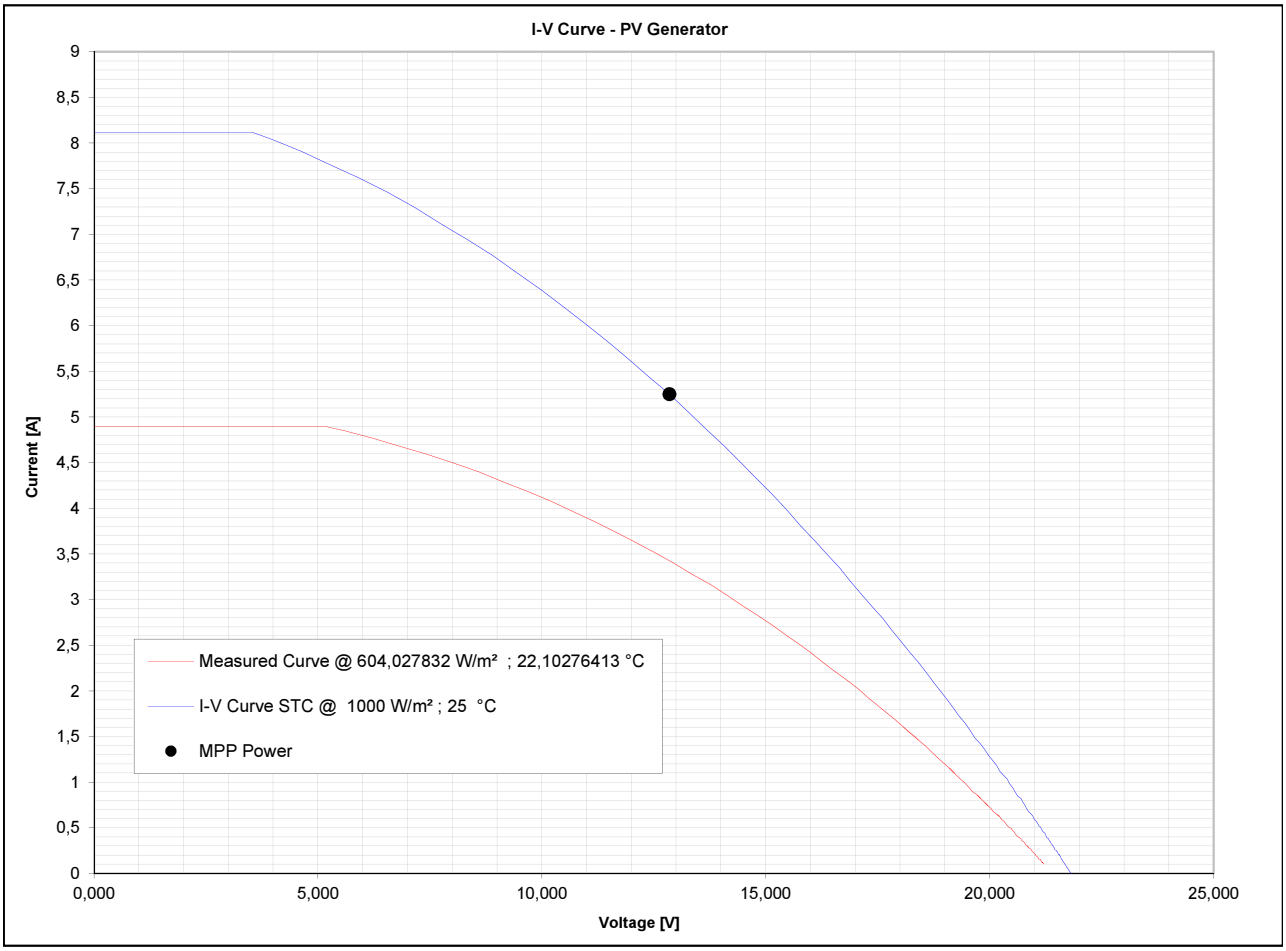
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:29:40**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4002
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-246			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	604,027832
Module Temp. (PT1000)	[°C]	22,10276413
MPP Power	[W]	44,02
MPP Voltage	[V]	12,56
MPP Current	[A]	3,51
OC Voltage	[V]	21,39
SC Current	[A]	4,89
Fill factor	[%]	42,06

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**67,46**
MPP Voltage	[V]	12,85
MPP Current	[A]	5,25
OC Voltage	[V]	21,82
SC Current	[A]	8,12
Fill factor	[%]	38,10



Peak power deviation @ STC	**-72,47%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

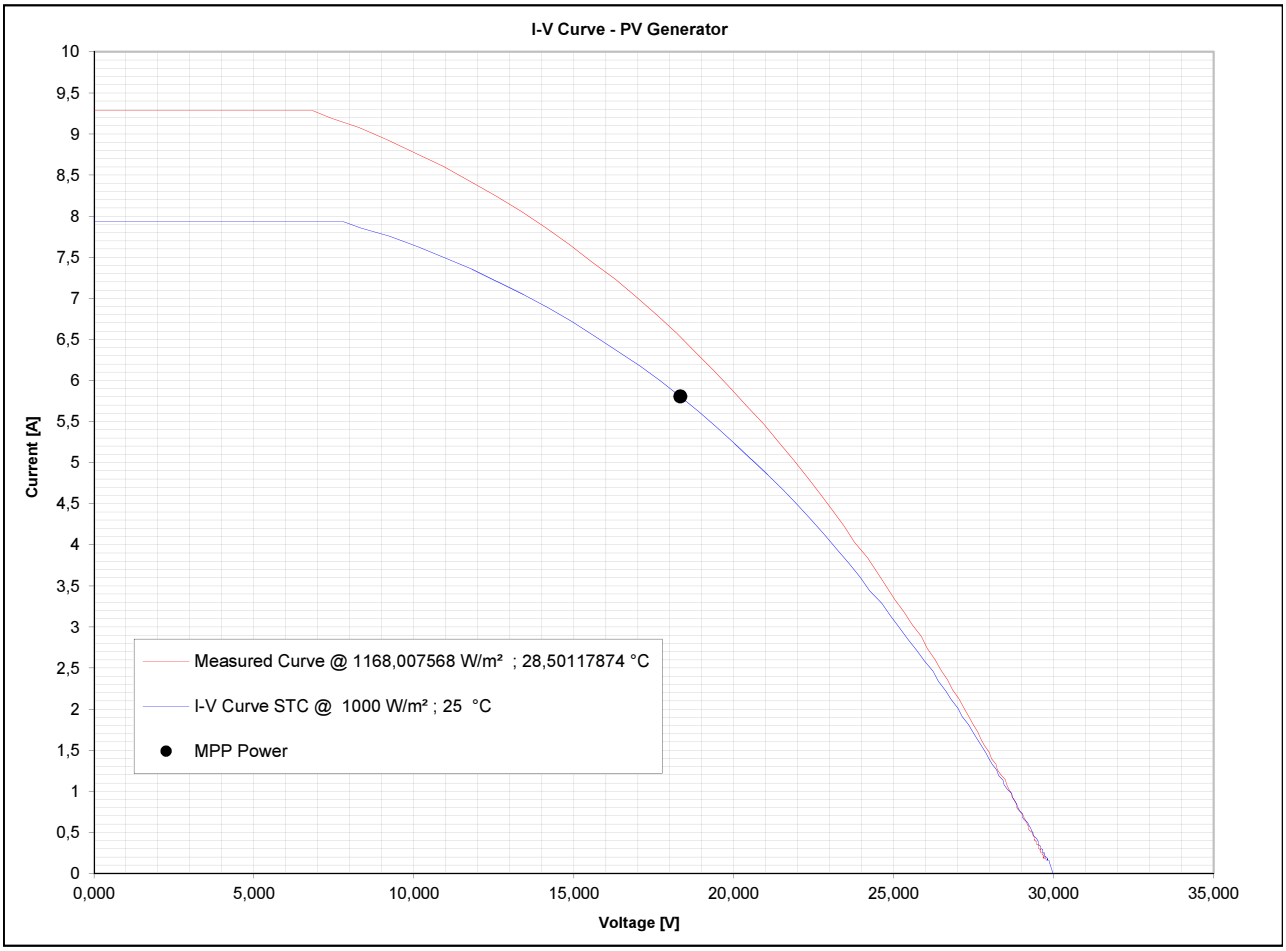
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:43:24**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		4002
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1168,007568
Module Temp. (PT1000)	[°C]	28,50117874
MPP Power	[W]	119,76
MPP Voltage	[V]	18,21
MPP Current	[A]	6,58
OC Voltage	[V]	29,89
SC Current	[A]	9,29
Fill factor	[%]	43,15

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**106,38**
MPP Voltage	[V]	18,33
MPP Current	[A]	5,80
OC Voltage	[V]	29,99
SC Current	[A]	7,93
Fill factor	[%]	44,72



Peak power deviation @ STC	**-56,58%**
Peak power deviation @ STC considering dust	**-**

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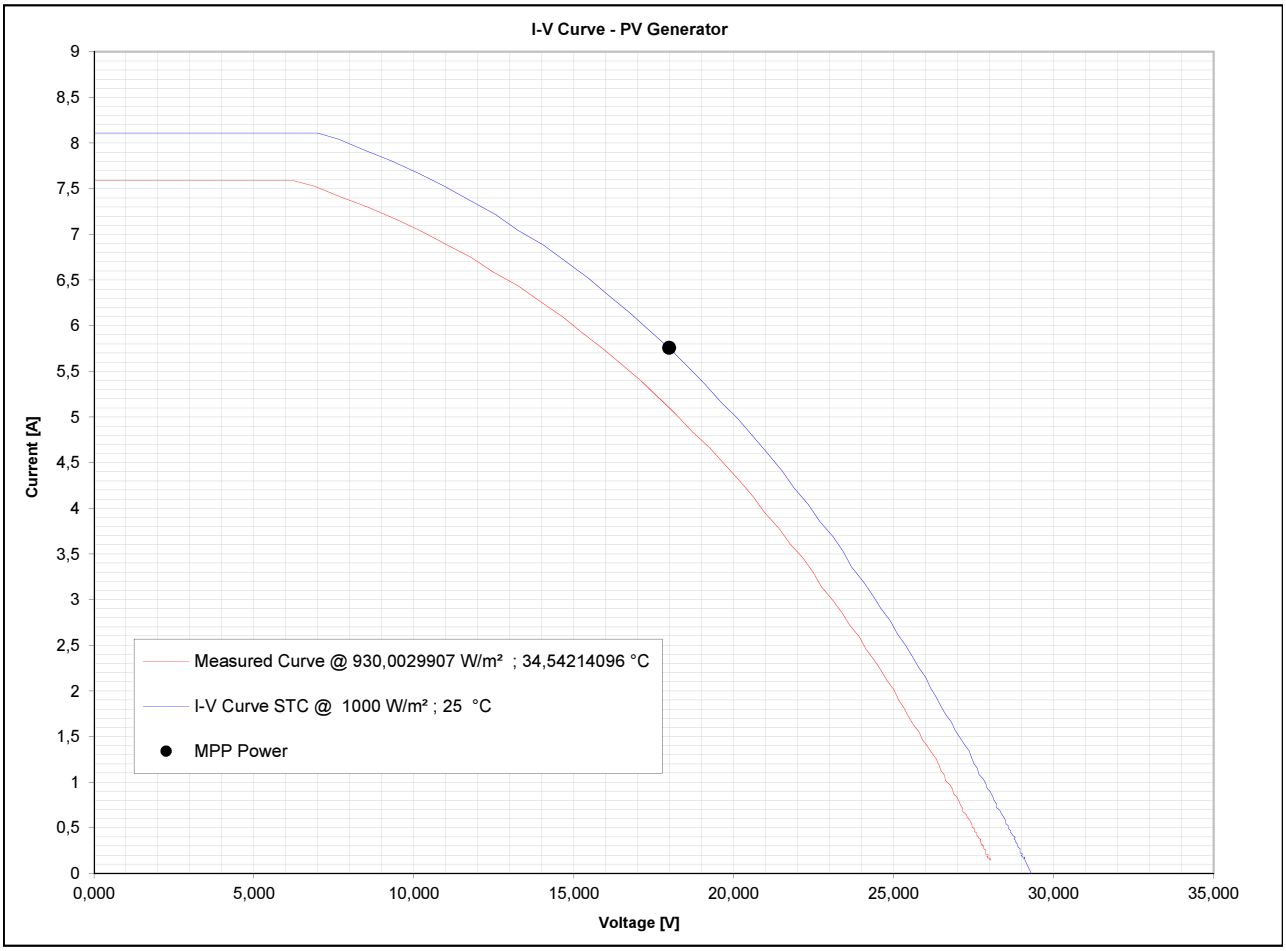
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:44:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4002
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	930,0029907
Module Temp. (PT1000)	[°C]	34,54214096
MPP Power	[W]	92,28
MPP Voltage	[V]	17,13
MPP Current	[A]	5,39
OC Voltage	[V]	28,22
SC Current	[A]	7,59
Fill factor	[%]	43,10

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**103,50**
MPP Voltage	[V]	17,98
MPP Current	[A]	5,76
OC Voltage	[V]	29,30
SC Current	[A]	8,11
Fill factor	[%]	43,56



Peak power deviation @ STC	**-57,76%**
Peak power deviation @ STC considering dust	**-**

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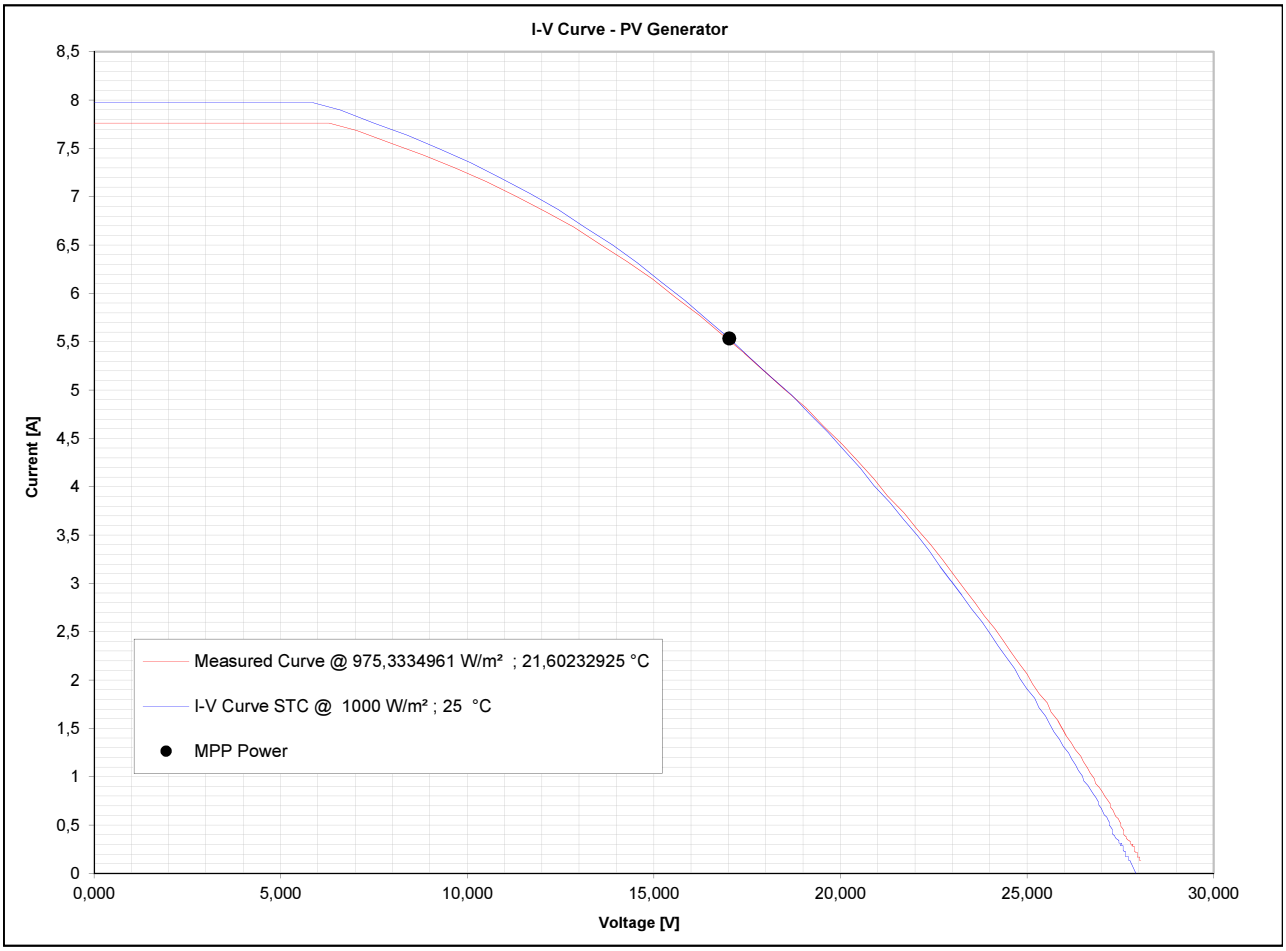
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:39:00**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4002
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	975,3334961
Module Temp. (PT1000)	[°C]	21,60232925
MPP Power	[W]	93,83
MPP Voltage	[V]	16,81
MPP Current	[A]	5,58
OC Voltage	[V]	28,22
SC Current	[A]	7,76
Fill factor	[%]	42,84

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**94,23**
MPP Voltage	[V]	17,03
MPP Current	[A]	5,53
OC Voltage	[V]	27,92
SC Current	[A]	7,98
Fill factor	[%]	42,32



Peak power deviation @ STC	**-61,54%**
Peak power deviation @ STC considering dust	**-**

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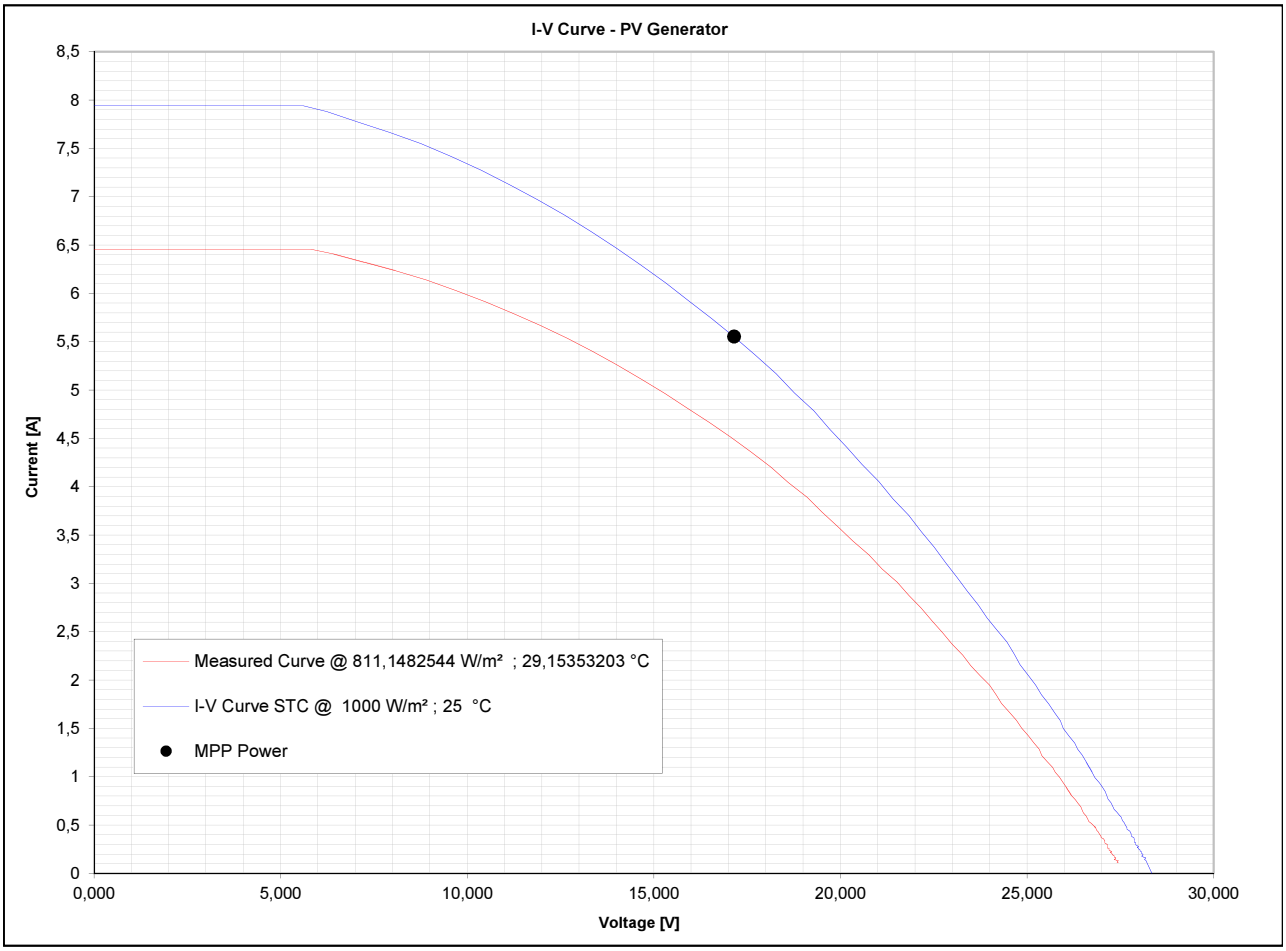
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:14:16**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4002
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	811,1482544
Module Temp. (PT1000)	[°C]	29,15353203
MPP Power	[W]	77,03
MPP Voltage	[V]	17,06
MPP Current	[A]	4,51
OC Voltage	[V]	27,59
SC Current	[A]	6,46
Fill factor	[%]	43,23

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**95,23**
MPP Voltage	[V]	17,15
MPP Current	[A]	5,55
OC Voltage	[V]	28,35
SC Current	[A]	7,94
Fill factor	[%]	42,30



Peak power deviation @ STC	**-61,13%**
Peak power deviation @ STC considering dust	**-**

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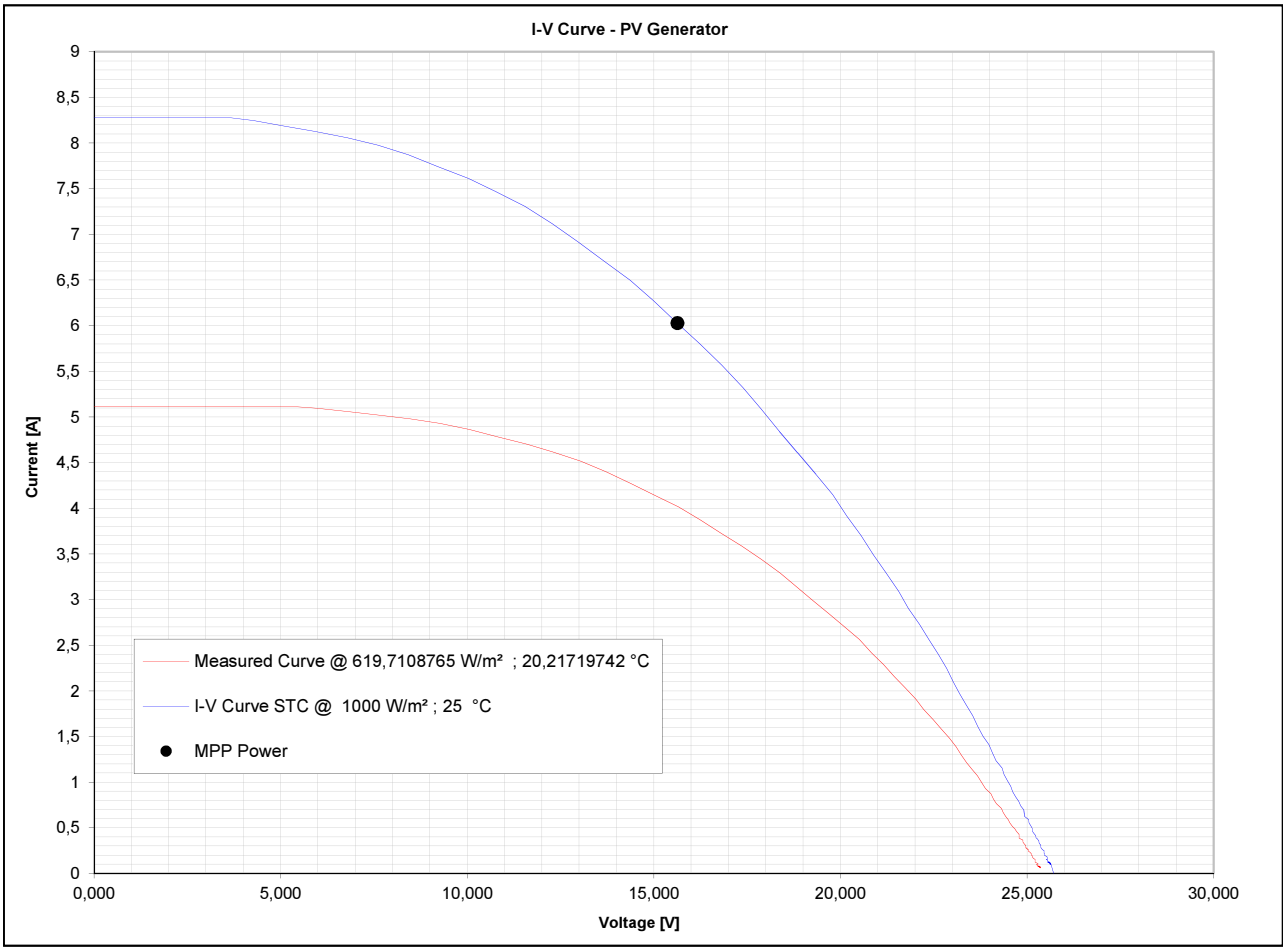
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:48:40**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4396
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-250			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	619,7108765
Module Temp. (PT1000)	[°C]	20,21719742
MPP Power	[W]	62,93
MPP Voltage	[V]	16,24
MPP Current	[A]	3,88
OC Voltage	[V]	25,42
SC Current	[A]	5,12
Fill factor	[%]	48,39

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**94,22**
MPP Voltage	[V]	15,63
MPP Current	[A]	6,03
OC Voltage	[V]	25,72
SC Current	[A]	8,28
Fill factor	[%]	44,24



Peak power deviation @ STC	**-61,54%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

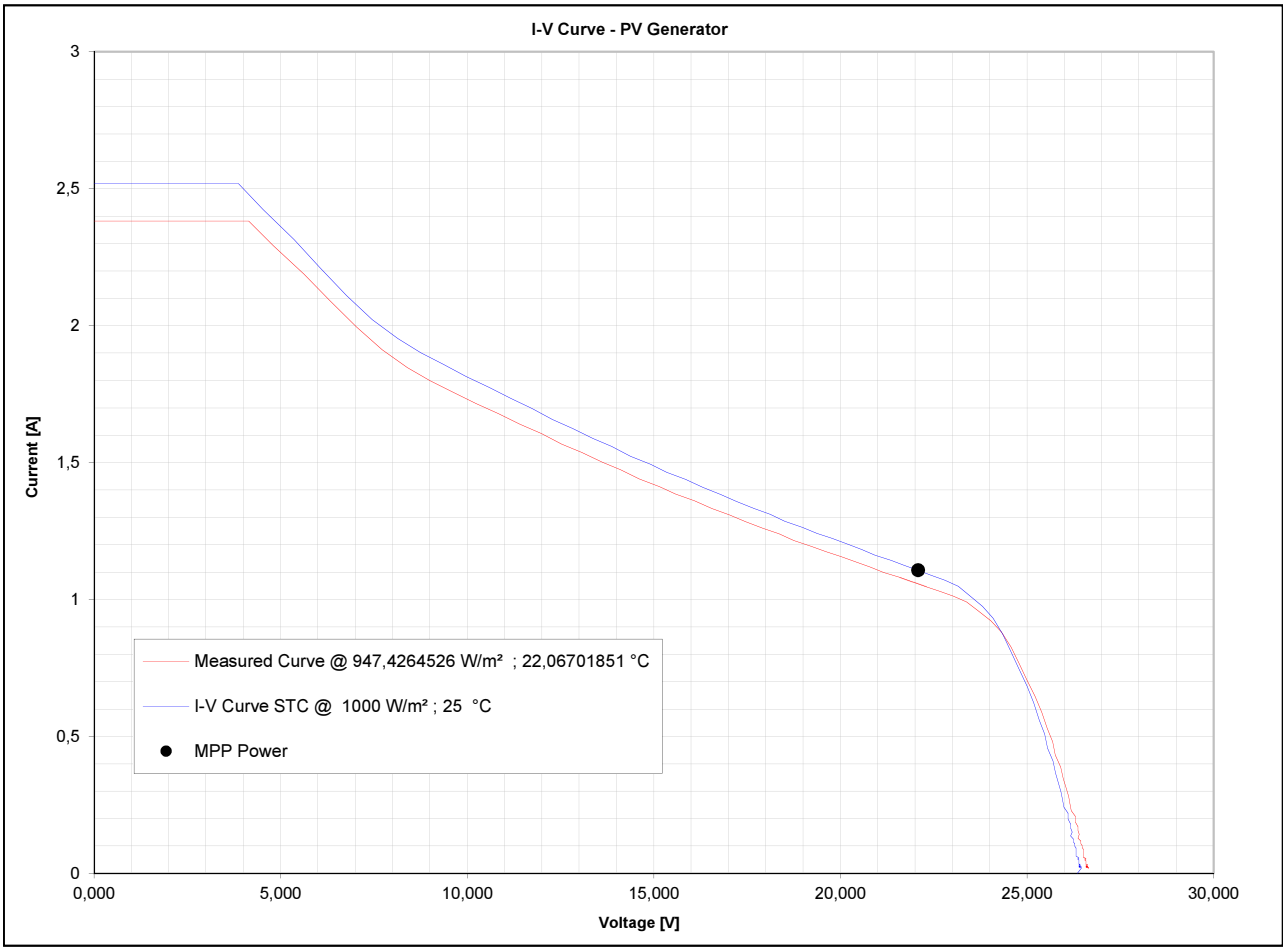
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **15:42:44**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4396
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	947,4264526
Module Temp. (PT1000)	[°C]	22,06701851
MPP Power	[W]	23,35
MPP Voltage	[V]	21,95
MPP Current	[A]	1,06
OC Voltage	[V]	26,54
SC Current	[A]	2,38
Fill factor	[%]	36,94

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**24,43**
MPP Voltage	[V]	22,08
MPP Current	[A]	1,11
OC Voltage	[V]	26,35
SC Current	[A]	2,52
Fill factor	[%]	36,82



Peak power deviation @ STC	**-90,03%**
Peak power deviation @ STC considering dust	**-**

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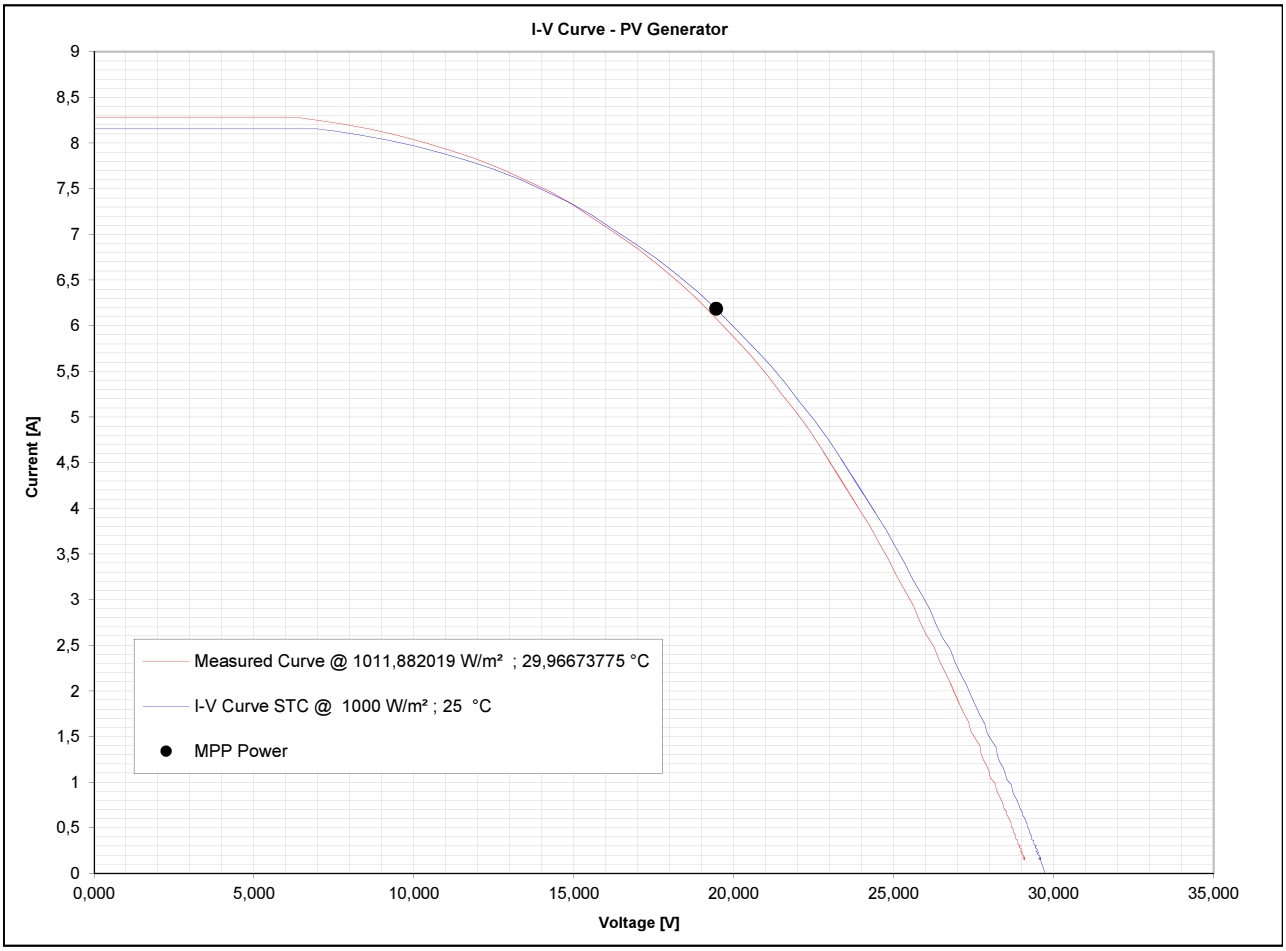
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:34:06**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4396
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1011,882019
Module Temp. (PT1000)	[°C]	29,96673775
MPP Power	[W]	118,63
MPP Voltage	[V]	18,90
MPP Current	[A]	6,28
OC Voltage	[V]	29,24
SC Current	[A]	8,28
Fill factor	[%]	49,00

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**120,31**
MPP Voltage	[V]	19,45
MPP Current	[A]	6,19
OC Voltage	[V]	29,73
SC Current	[A]	8,16
Fill factor	[%]	49,60



Peak power deviation @ STC	**-50,89%**
Peak power deviation @ STC considering dust	**-**

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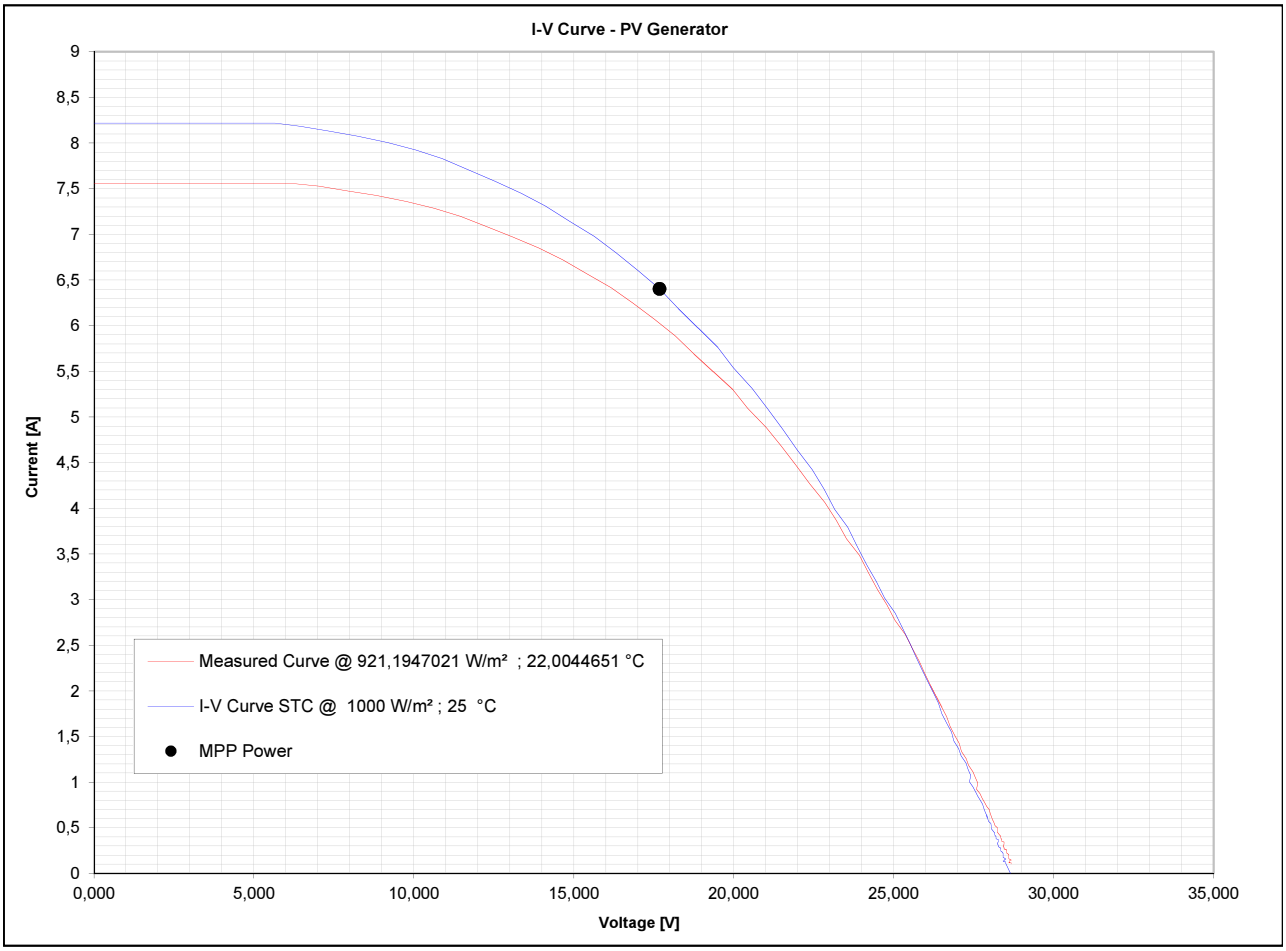
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:40:00**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4396
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	921,1947021
Module Temp. (PT1000)	[°C]	22,0044651
MPP Power	[W]	107,00
MPP Voltage	[V]	18,18
MPP Current	[A]	5,89
OC Voltage	[V]	28,81
SC Current	[A]	7,56
Fill factor	[%]	49,14

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**113,19**
MPP Voltage	[V]	17,68
MPP Current	[A]	6,40
OC Voltage	[V]	28,65
SC Current	[A]	8,22
Fill factor	[%]	48,08



Peak power deviation @ STC	**-53,80%**
Peak power deviation @ STC considering dust	**-**

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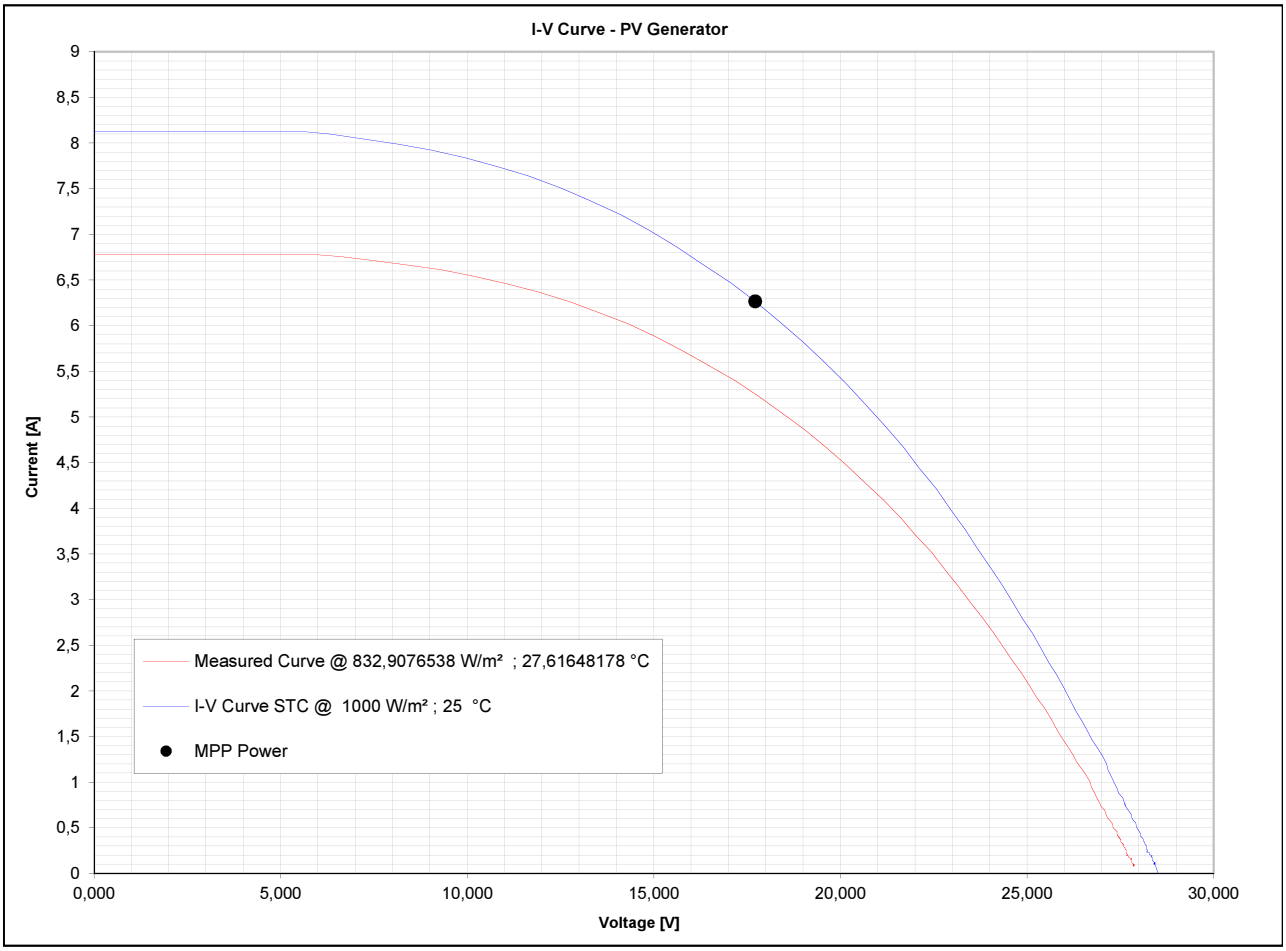
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:08:06**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4396
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	832,9076538
Module Temp. (PT1000)	[°C]	27,61648178
MPP Power	[W]	93,11
MPP Voltage	[V]	17,82
MPP Current	[A]	5,23
OC Voltage	[V]	27,94
SC Current	[A]	6,78
Fill factor	[%]	49,15

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**111,00**
MPP Voltage	[V]	17,72
MPP Current	[A]	6,26
OC Voltage	[V]	28,51
SC Current	[A]	8,13
Fill factor	[%]	47,91



Peak power deviation @ STC	**-54,69%**
Peak power deviation @ STC considering dust	**-**

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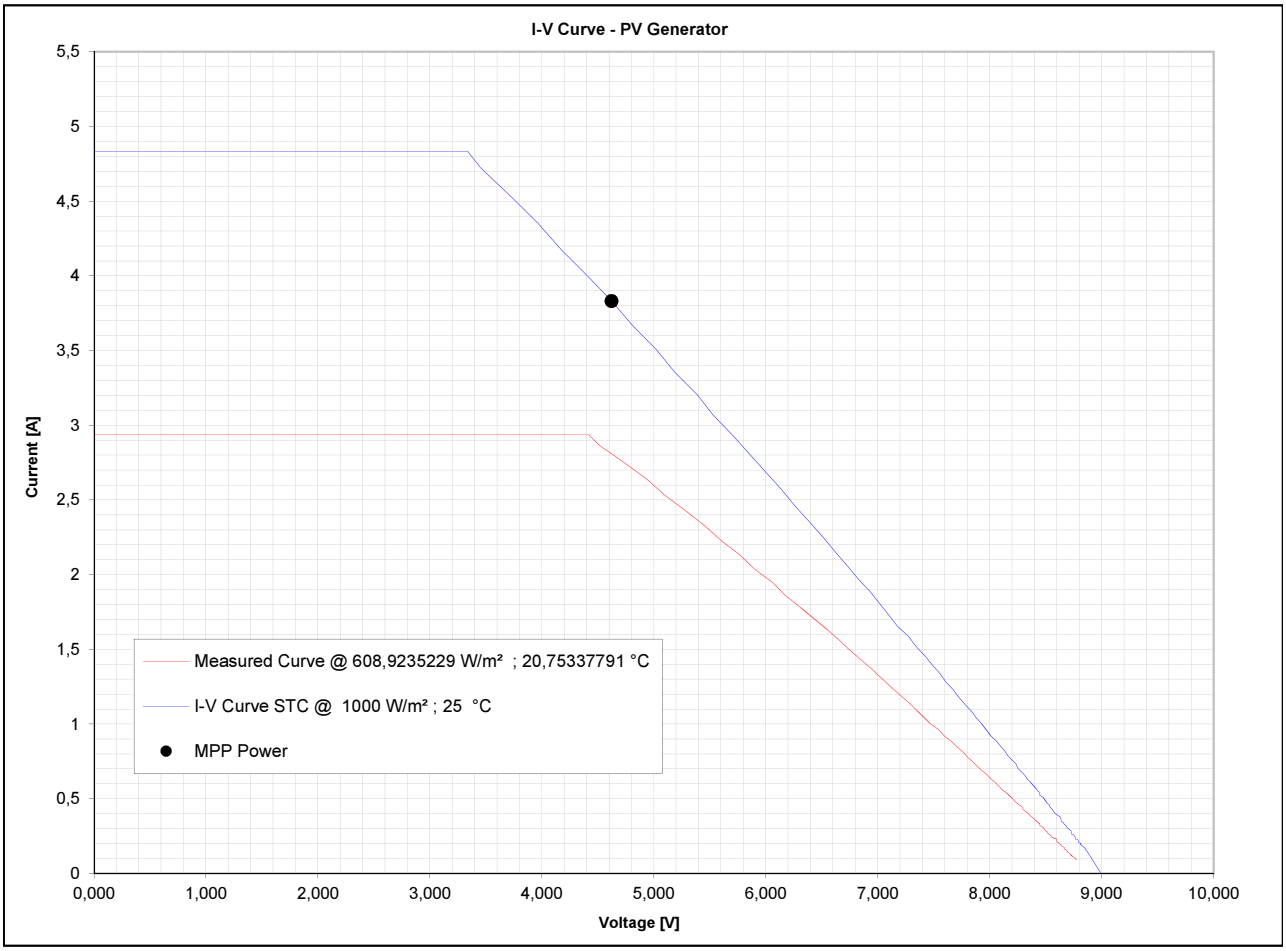
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **16:40:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4463
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-255			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	608,9235229
Module Temp. (PT1000)	[°C]	20,75337791
MPP Power	[W]	13,03
MPP Voltage	[V]	4,93
MPP Current	[A]	2,64
OC Voltage	[V]	8,87
SC Current	[A]	2,94
Fill factor	[%]	50,05

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**17,71**
MPP Voltage	[V]	4,62
MPP Current	[A]	3,83
OC Voltage	[V]	9,00
SC Current	[A]	4,83
Fill factor	[%]	40,71



Peak power deviation @ STC	**-92,77%**
Peak power deviation @ STC considering dust	**-**

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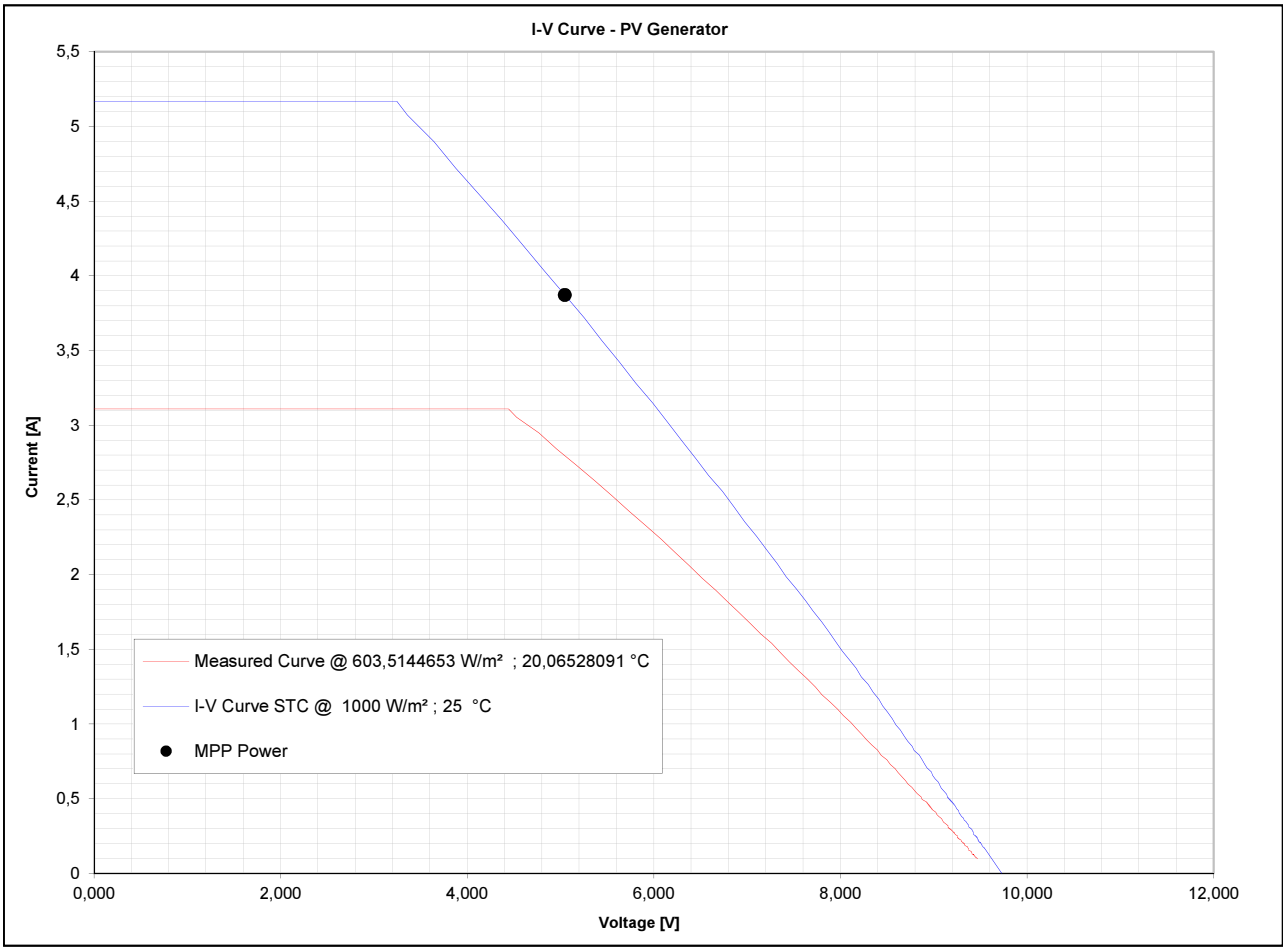
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **15:39:56**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4463
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	603,5144653
Module Temp. (PT1000)	[°C]	20,06528091
MPP Power	[W]	14,13
MPP Voltage	[V]	5,17
MPP Current	[A]	2,73
OC Voltage	[V]	9,61
SC Current	[A]	3,11
Fill factor	[%]	47,28

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**19,55**
MPP Voltage	[V]	5,05
MPP Current	[A]	3,87
OC Voltage	[V]	9,73
SC Current	[A]	5,17
Fill factor	[%]	38,88



Peak power deviation @ STC	**-92,02%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

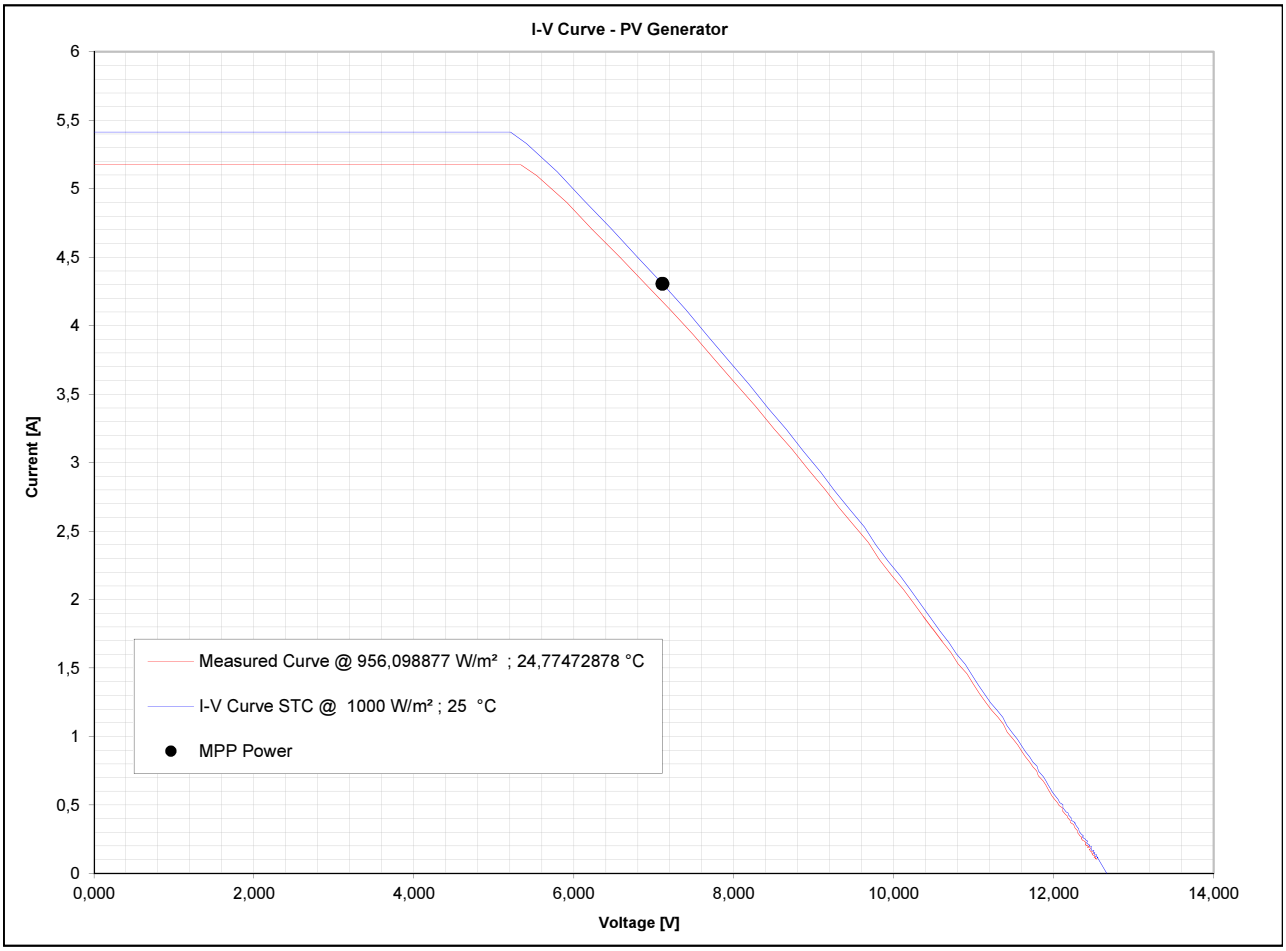
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:27:38**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4463
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	956,098877
Module Temp. (PT1000)	[°C]	24,77472878
MPP Power	[W]	29,69
MPP Voltage	[V]	6,90
MPP Current	[A]	4,30
OC Voltage	[V]	12,64
SC Current	[A]	5,18
Fill factor	[%]	45,38

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**30,60**
MPP Voltage	[V]	7,11
MPP Current	[A]	4,31
OC Voltage	[V]	12,66
SC Current	[A]	5,41
Fill factor	[%]	44,63



Peak power deviation @ STC	**-87,51%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

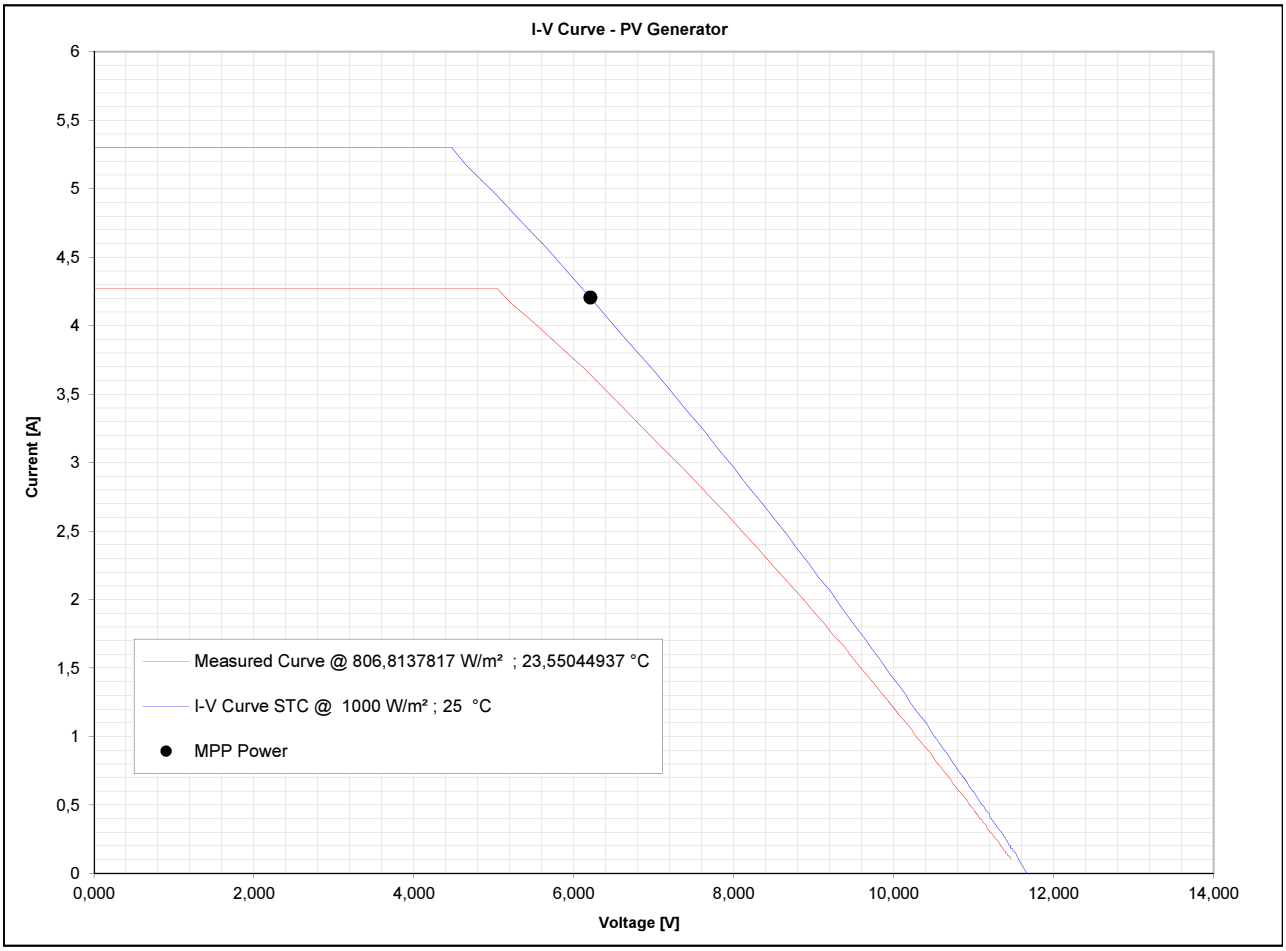
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:44:50**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4463
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	806,8137817
Module Temp. (PT1000)	[°C]	23,55044937
MPP Power	[W]	22,60
MPP Voltage	[V]	6,13
MPP Current	[A]	3,69
OC Voltage	[V]	11,58
SC Current	[A]	4,27
Fill factor	[%]	45,68

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**26,09**
MPP Voltage	[V]	6,21
MPP Current	[A]	4,20
OC Voltage	[V]	11,67
SC Current	[A]	5,30
Fill factor	[%]	42,19



Peak power deviation @ STC	**-89,35%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

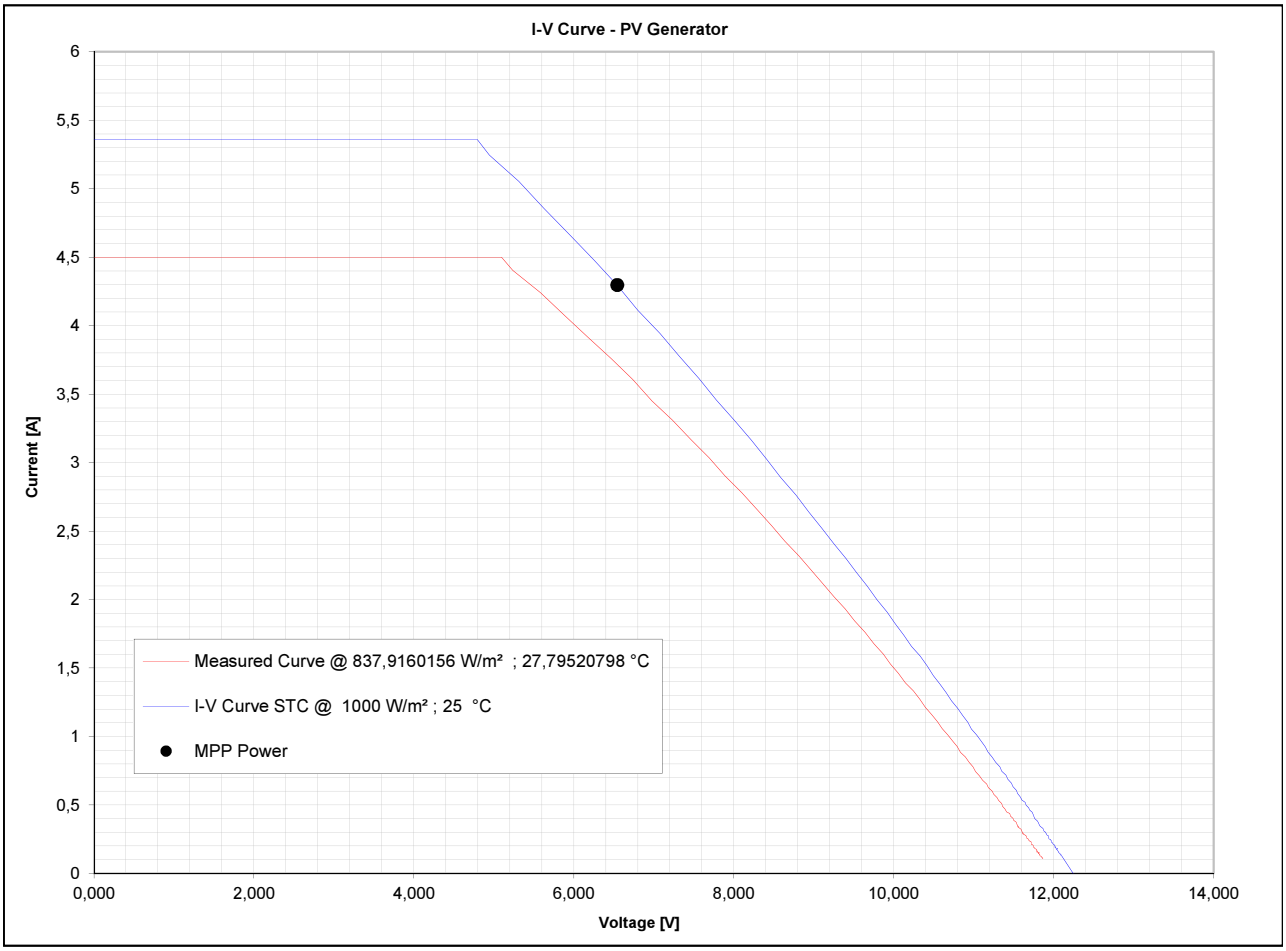
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:09:08**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4463
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	837,9160156
Module Temp. (PT1000)	[°C]	27,79520798
MPP Power	[W]	24,32
MPP Voltage	[V]	6,47
MPP Current	[A]	3,76
OC Voltage	[V]	12,00
SC Current	[A]	4,50
Fill factor	[%]	45,05

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**28,11**
MPP Voltage	[V]	6,54
MPP Current	[A]	4,30
OC Voltage	[V]	12,25
SC Current	[A]	5,36
Fill factor	[%]	42,84



Peak power deviation @ STC	**-88,52%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

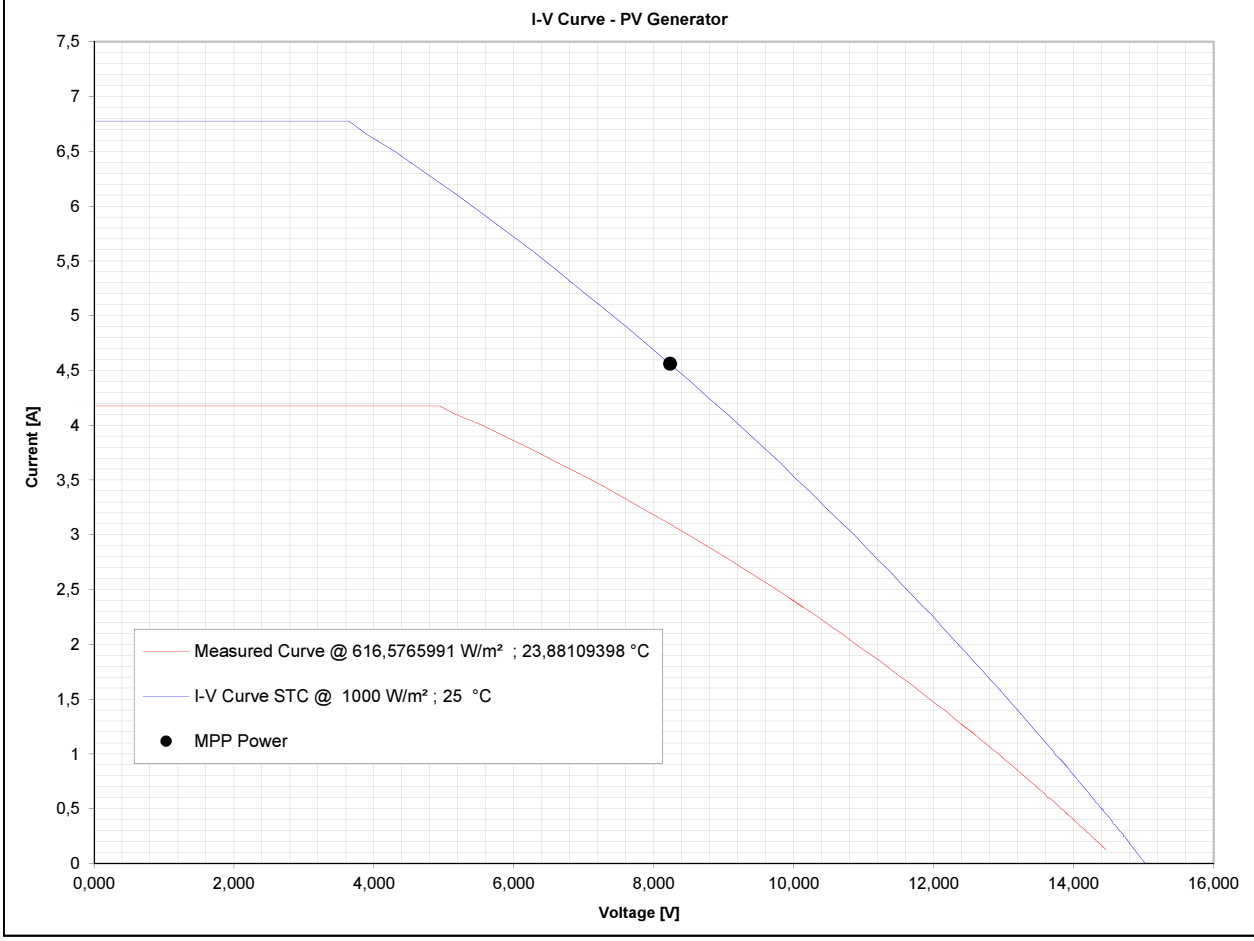
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:35:22**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4470
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-248			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	616,5765991
Module Temp. (PT1000)	[°C]	23,88109398
MPP Power	[W]	25,49
MPP Voltage	[V]	8,18
MPP Current	[A]	3,12
OC Voltage	[V]	14,66
SC Current	[A]	4,17
Fill factor	[%]	41,66

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**37,54**
MPP Voltage	[V]	8,23
MPP Current	[A]	4,56
OC Voltage	[V]	15,02
SC Current	[A]	6,78
Fill factor	[%]	36,88



Peak power deviation @ STC	**-84,68%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

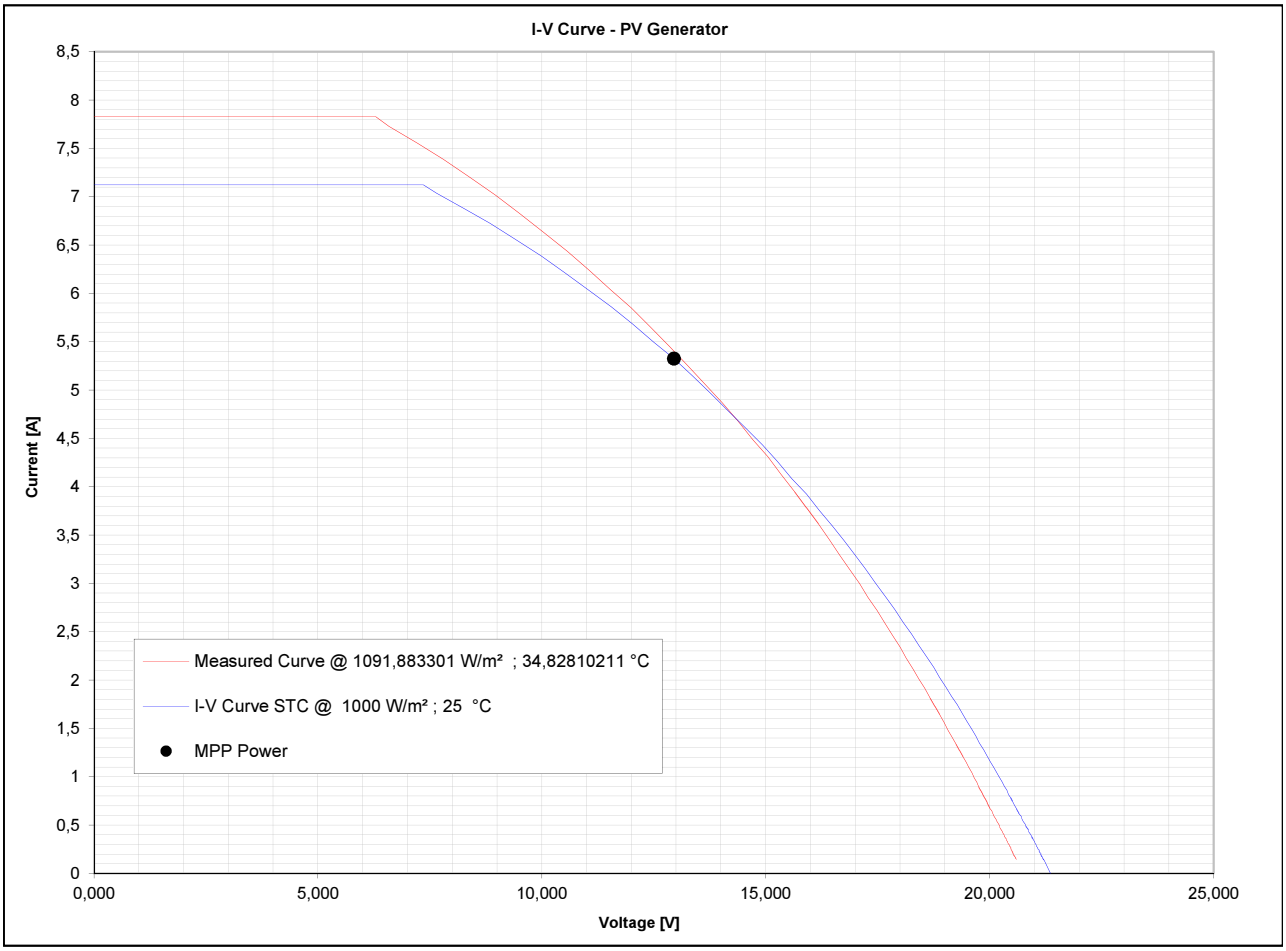
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:49:56**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4470
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1091,883301
Module Temp. (PT1000)	[°C]	34,82810211
MPP Power	[W]	70,26
MPP Voltage	[V]	12,43
MPP Current	[A]	5,65
OC Voltage	[V]	20,74
SC Current	[A]	7,83
Fill factor	[%]	43,27

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**68,97**
MPP Voltage	[V]	12,95
MPP Current	[A]	5,33
OC Voltage	[V]	21,36
SC Current	[A]	7,12
Fill factor	[%]	45,32



Peak power deviation @ STC	**-71,85%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

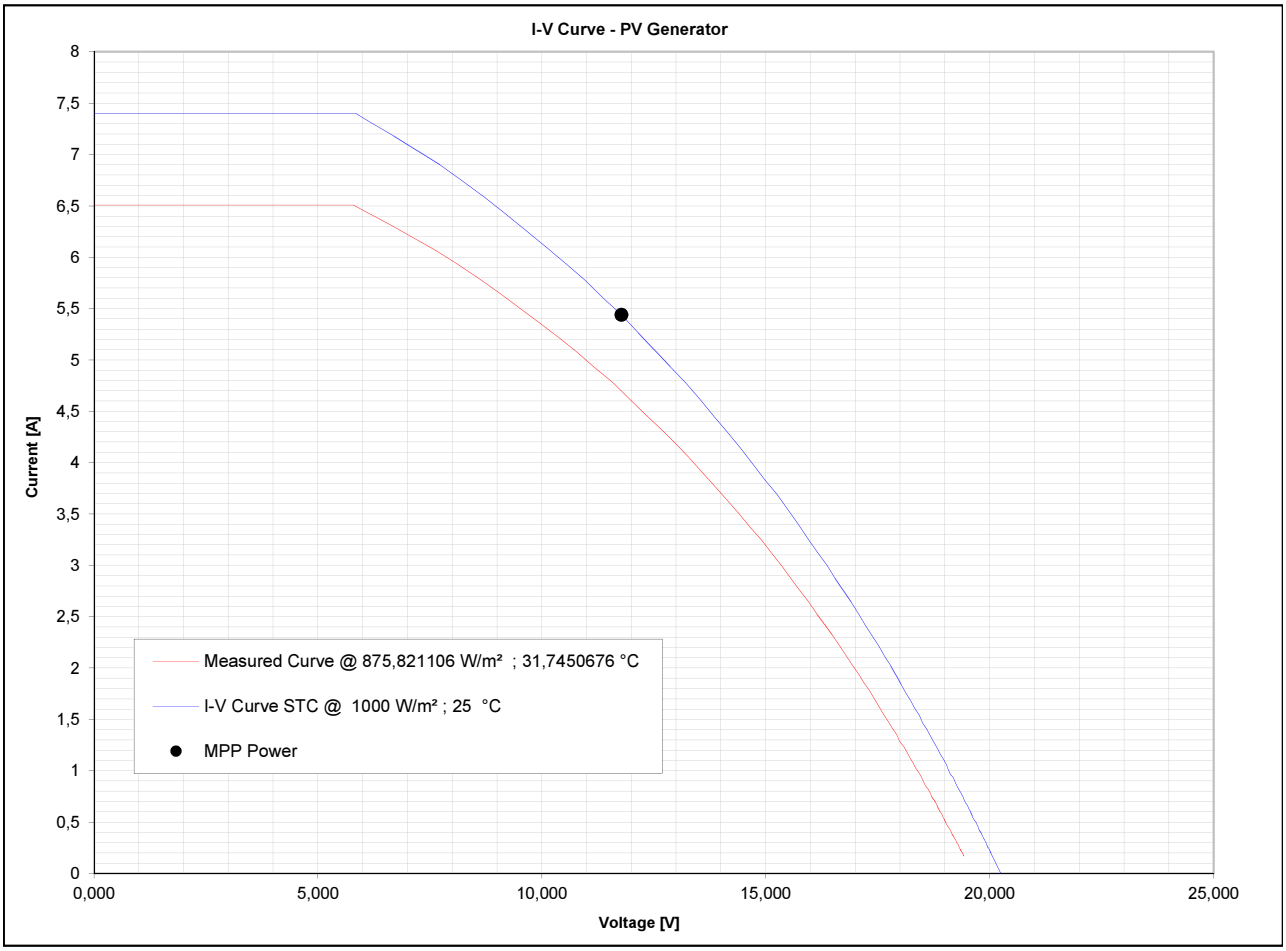
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:47:02**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4470
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	875,821106
Module Temp. (PT1000)	[°C]	31,7450676
MPP Power	[W]	55,35
MPP Voltage	[V]	11,57
MPP Current	[A]	4,78
OC Voltage	[V]	19,62
SC Current	[A]	6,51
Fill factor	[%]	43,35

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**64,06**
MPP Voltage	[V]	11,78
MPP Current	[A]	5,44
OC Voltage	[V]	20,25
SC Current	[A]	7,40
Fill factor	[%]	42,76



Peak power deviation @ STC	**-73,85%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

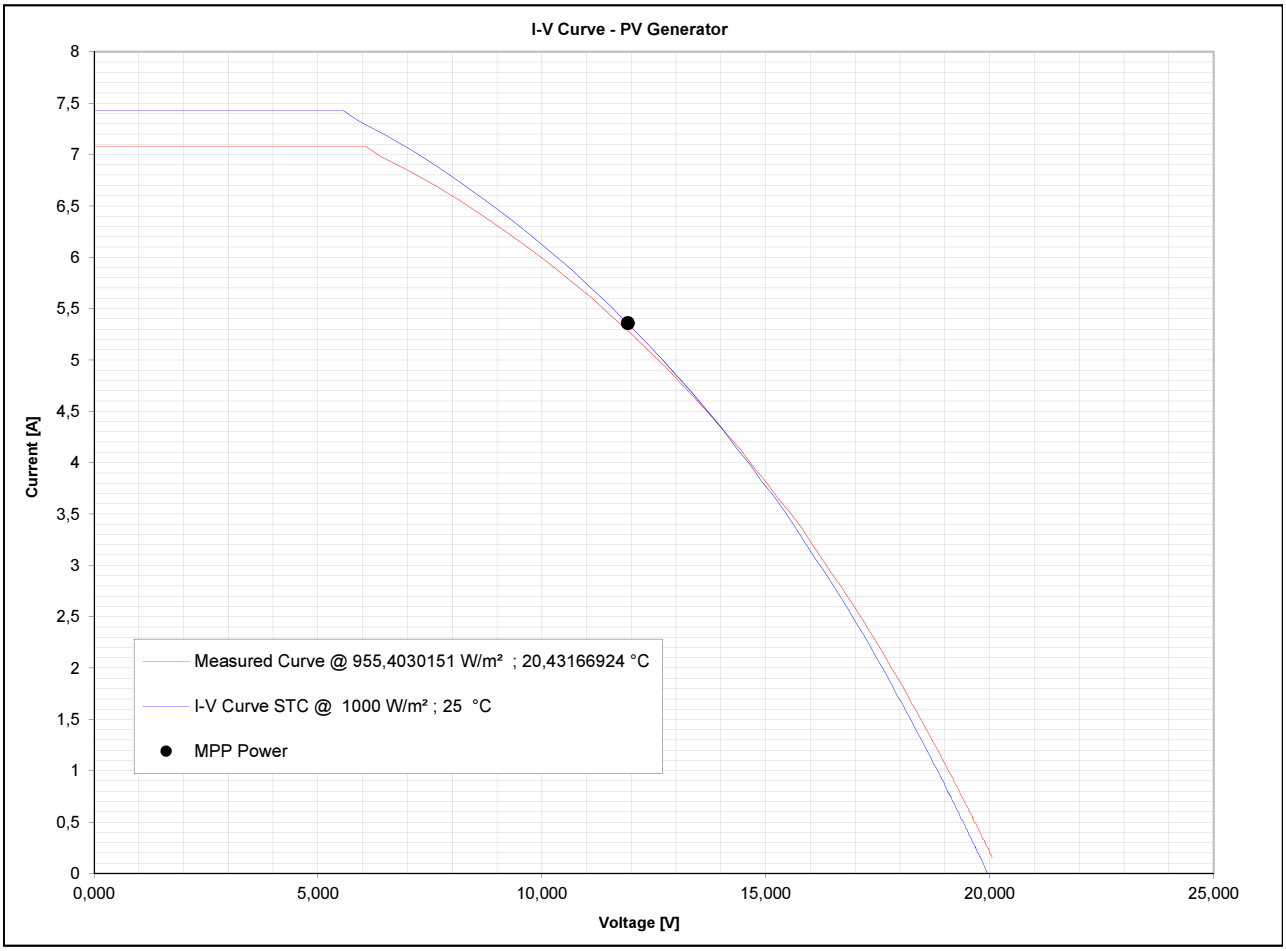
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:34:44**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4470
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	955,4030151
Module Temp. (PT1000)	[°C]	20,43166924
MPP Power	[W]	63,05
MPP Voltage	[V]	12,36
MPP Current	[A]	5,10
OC Voltage	[V]	20,23
SC Current	[A]	7,08
Fill factor	[%]	44,04

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**63,85**
MPP Voltage	[V]	11,92
MPP Current	[A]	5,36
OC Voltage	[V]	19,95
SC Current	[A]	7,43
Fill factor	[%]	43,07



Peak power deviation @ STC	**-73,94%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

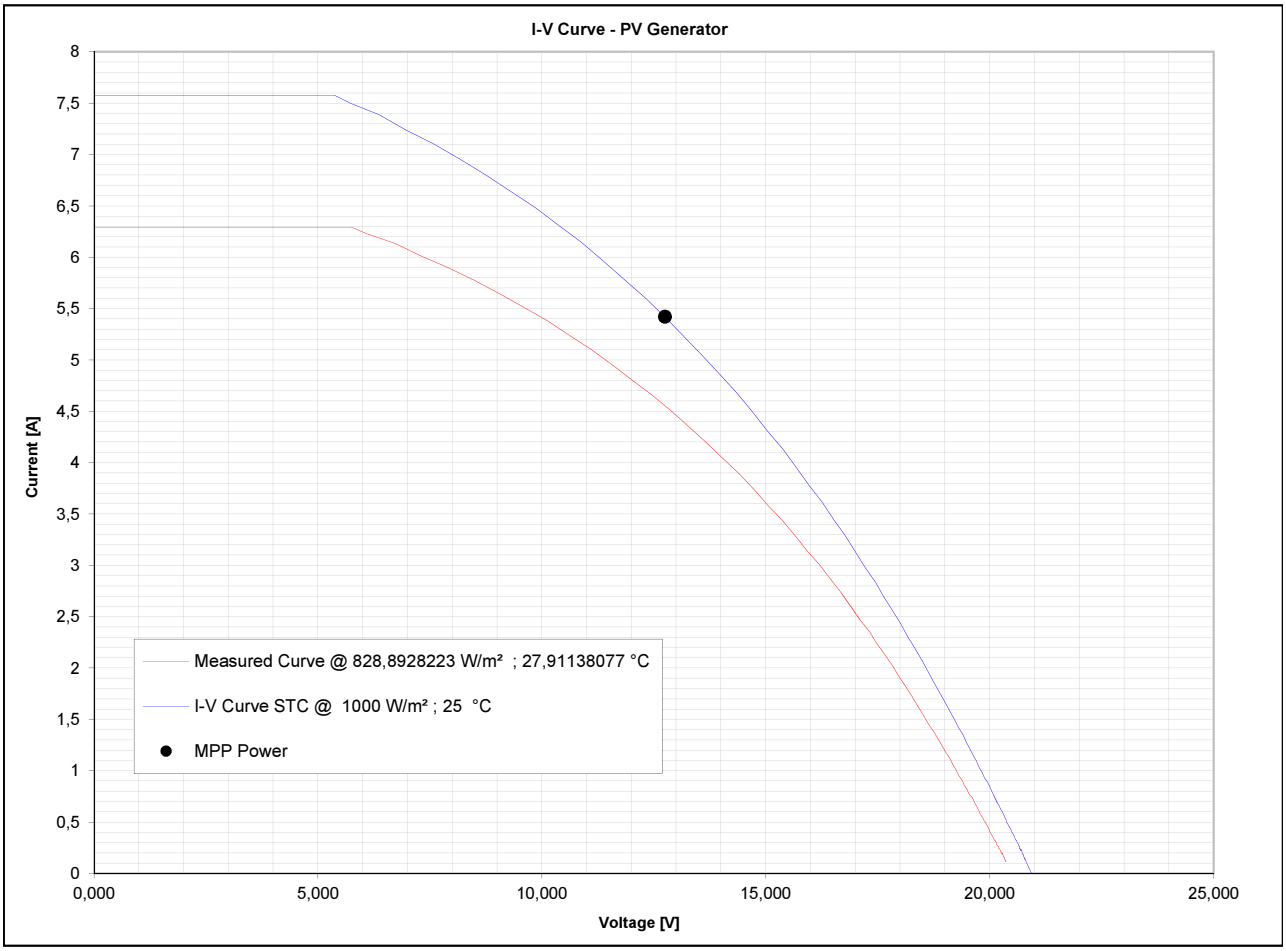
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:10:48**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4470
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	828,8928223
Module Temp. (PT1000)	[°C]	27,91138077
MPP Power	[W]	58,05
MPP Voltage	[V]	12,48
MPP Current	[A]	4,65
OC Voltage	[V]	20,49
SC Current	[A]	6,29
Fill factor	[%]	45,02

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**69,09**
MPP Voltage	[V]	12,75
MPP Current	[A]	5,42
OC Voltage	[V]	20,94
SC Current	[A]	7,58
Fill factor	[%]	43,56



Peak power deviation @ STC	**-71,80%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

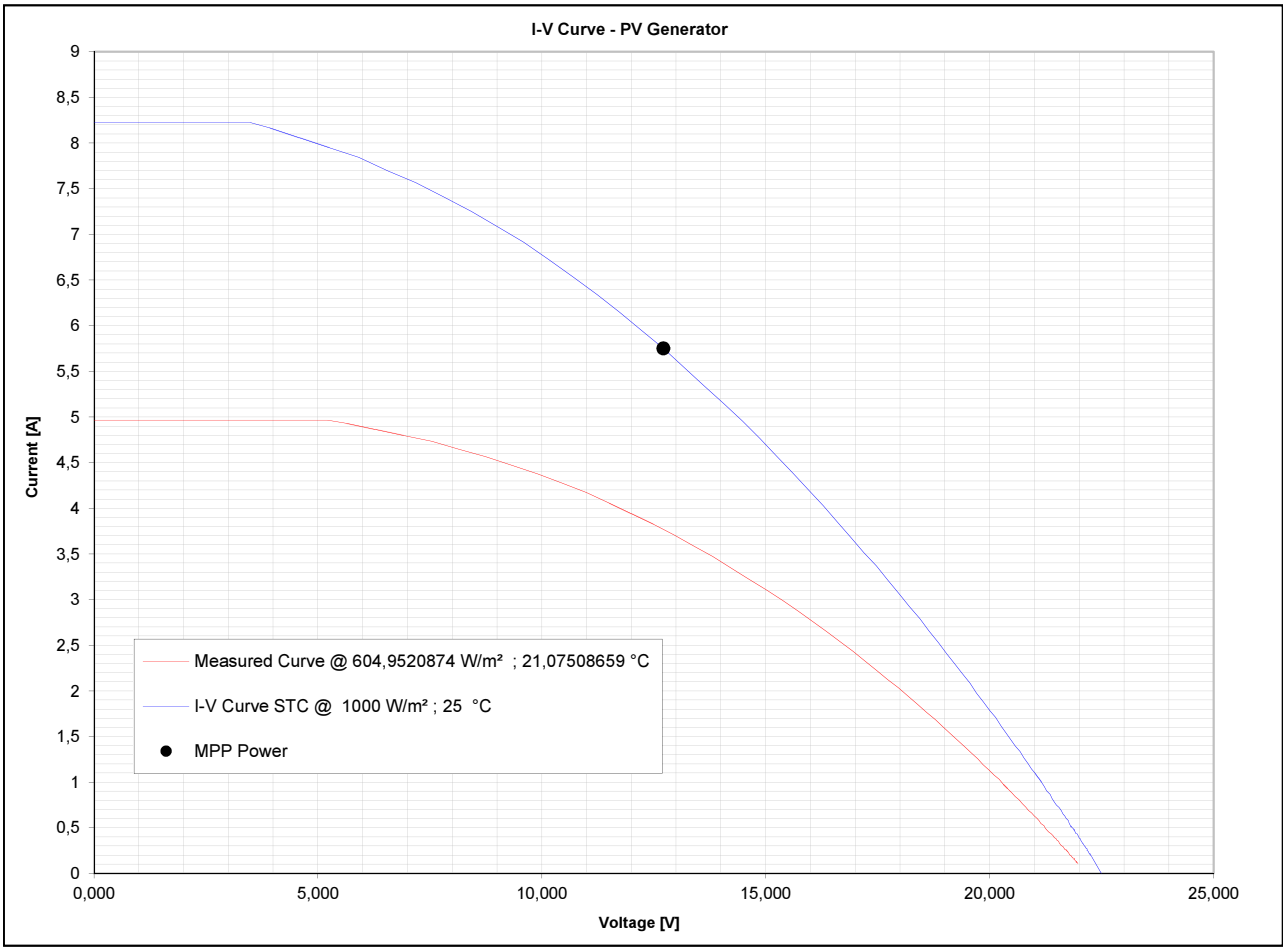
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:49:22**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4538
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-251			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	604,9520874
Module Temp. (PT1000)	[°C]	21,07508659
MPP Power	[W]	48,02
MPP Voltage	[V]	13,39
MPP Current	[A]	3,59
OC Voltage	[V]	22,13
SC Current	[A]	4,96
Fill factor	[%]	43,69

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**73,12**
MPP Voltage	[V]	12,72
MPP Current	[A]	5,75
OC Voltage	[V]	22,49
SC Current	[A]	8,23
Fill factor	[%]	39,51



Peak power deviation @ STC	**-70,16%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

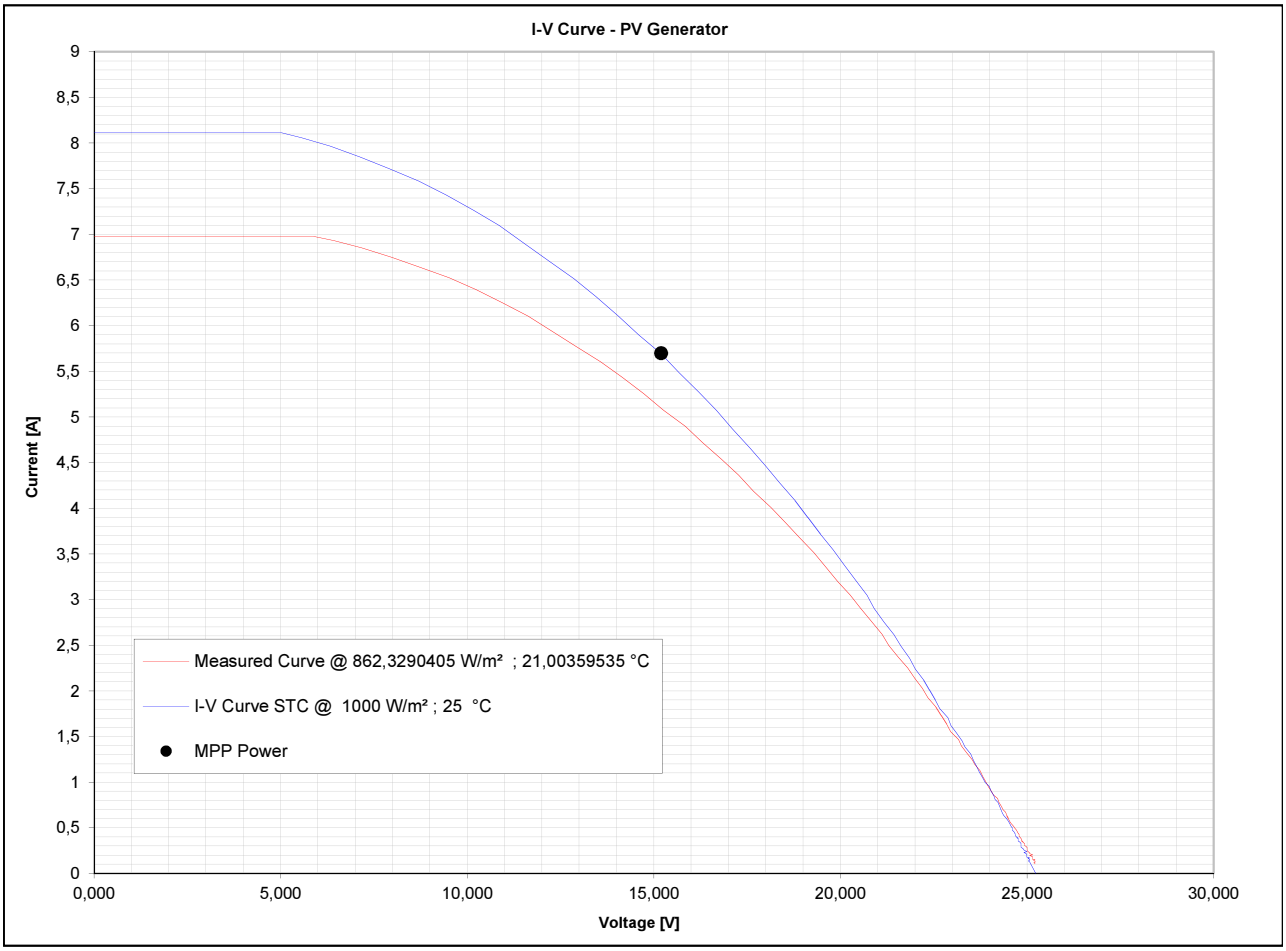
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **15:41:42**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4538
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	862,3290405
Module Temp. (PT1000)	[°C]	21,00359535
MPP Power	[W]	77,61
MPP Voltage	[V]	15,84
MPP Current	[A]	4,90
OC Voltage	[V]	25,37
SC Current	[A]	6,98
Fill factor	[%]	43,83

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**86,55**
MPP Voltage	[V]	15,20
MPP Current	[A]	5,70
OC Voltage	[V]	25,24
SC Current	[A]	8,11
Fill factor	[%]	42,27



Peak power deviation @ STC	**-64,67%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

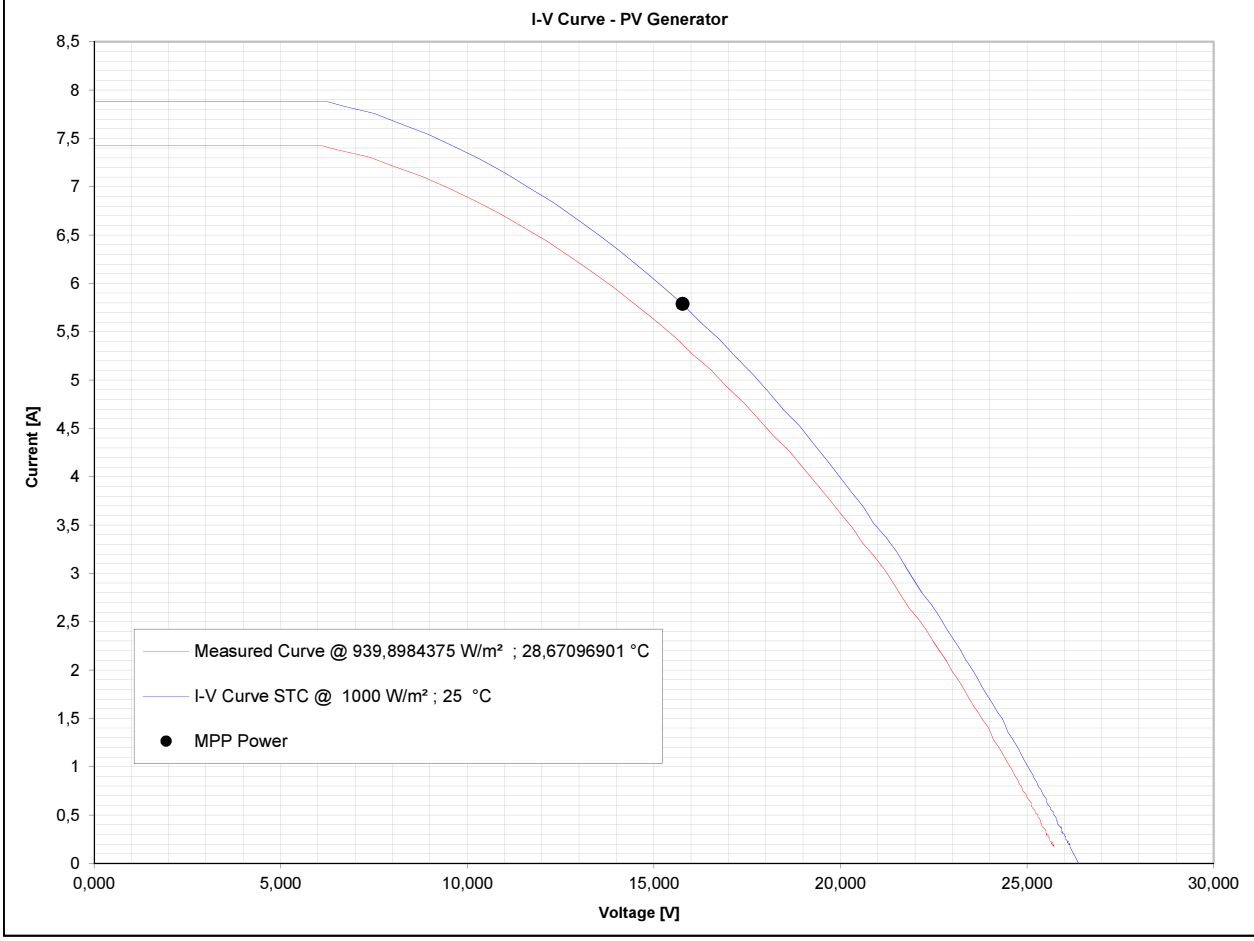
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:32:54**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		
				4538
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	939,8984375
Module Temp. (PT1000)	[°C]	28,67096901
MPP Power	[W]	84,78
MPP Voltage	[V]	15,55
MPP Current	[A]	5,45
OC Voltage	[V]	25,95
SC Current	[A]	7,42
Fill factor	[%]	44,01

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**91,27**
MPP Voltage	[V]	15,77
MPP Current	[A]	5,79
OC Voltage	[V]	26,38
SC Current	[A]	7,88
Fill factor	[%]	43,90



Peak power deviation @ STC	**-62,74%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

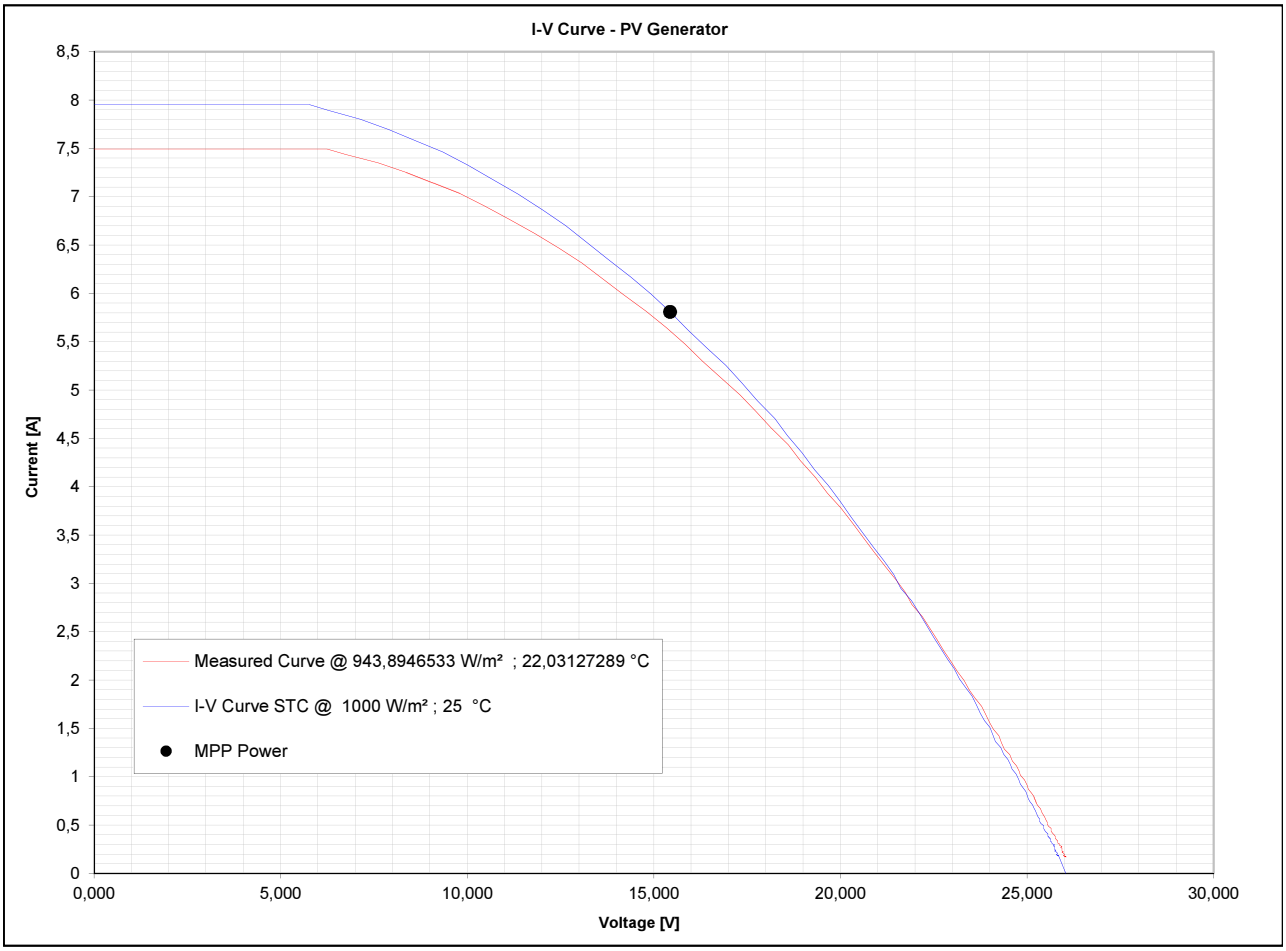
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:40:54**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4538
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	943,8946533
Module Temp. (PT1000)	[°C]	22,03127289
MPP Power	[W]	86,69
MPP Voltage	[V]	15,84
MPP Current	[A]	5,47
OC Voltage	[V]	26,23
SC Current	[A]	7,49
Fill factor	[%]	44,11

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**89,68**
MPP Voltage	[V]	15,44
MPP Current	[A]	5,81
OC Voltage	[V]	26,04
SC Current	[A]	7,95
Fill factor	[%]	43,30



Peak power deviation @ STC	**-63,39%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

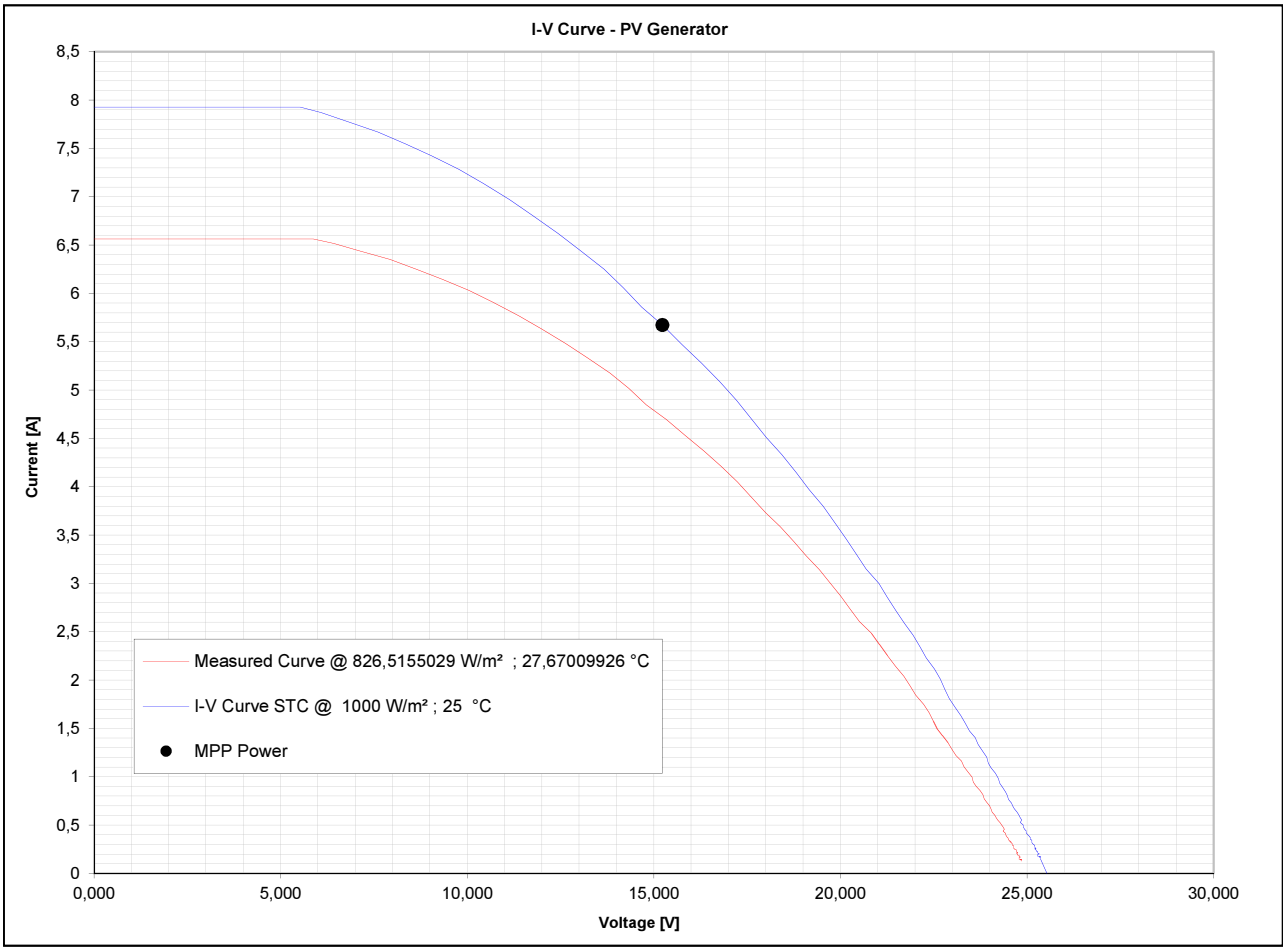
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:07:02**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4538
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	826,5155029
Module Temp. (PT1000)	[°C]	27,67009926
MPP Power	[W]	72,03
MPP Voltage	[V]	15,34
MPP Current	[A]	4,70
OC Voltage	[V]	25,01
SC Current	[A]	6,56
Fill factor	[%]	43,88

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**86,43**
MPP Voltage	[V]	15,24
MPP Current	[A]	5,67
OC Voltage	[V]	25,54
SC Current	[A]	7,93
Fill factor	[%]	42,70



Peak power deviation @ STC	**-64,72%**
Peak power deviation @ STC considering dust	**-**

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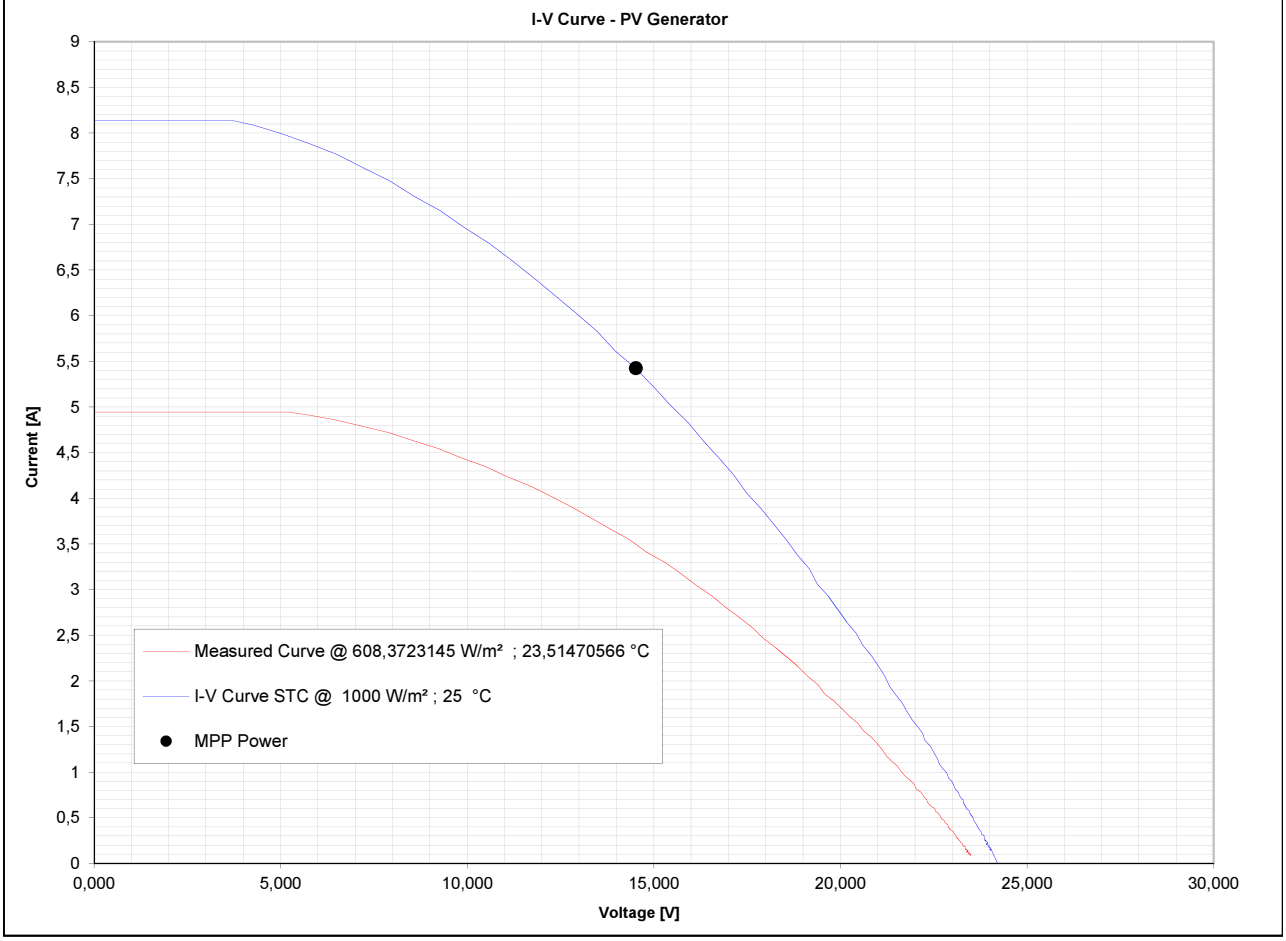
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **17:09:40**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4603
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-259			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	608,3723145
Module Temp. (PT1000)	[°C]	23,51470566
MPP Power	[W]	50,89
MPP Voltage	[V]	14,37
MPP Current	[A]	3,54
OC Voltage	[V]	23,64
SC Current	[A]	4,95
Fill factor	[%]	43,54

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**78,73**
MPP Voltage	[V]	14,52
MPP Current	[A]	5,42
OC Voltage	[V]	24,22
SC Current	[A]	8,14
Fill factor	[%]	39,96



Peak power deviation @ STC	**-67,86%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

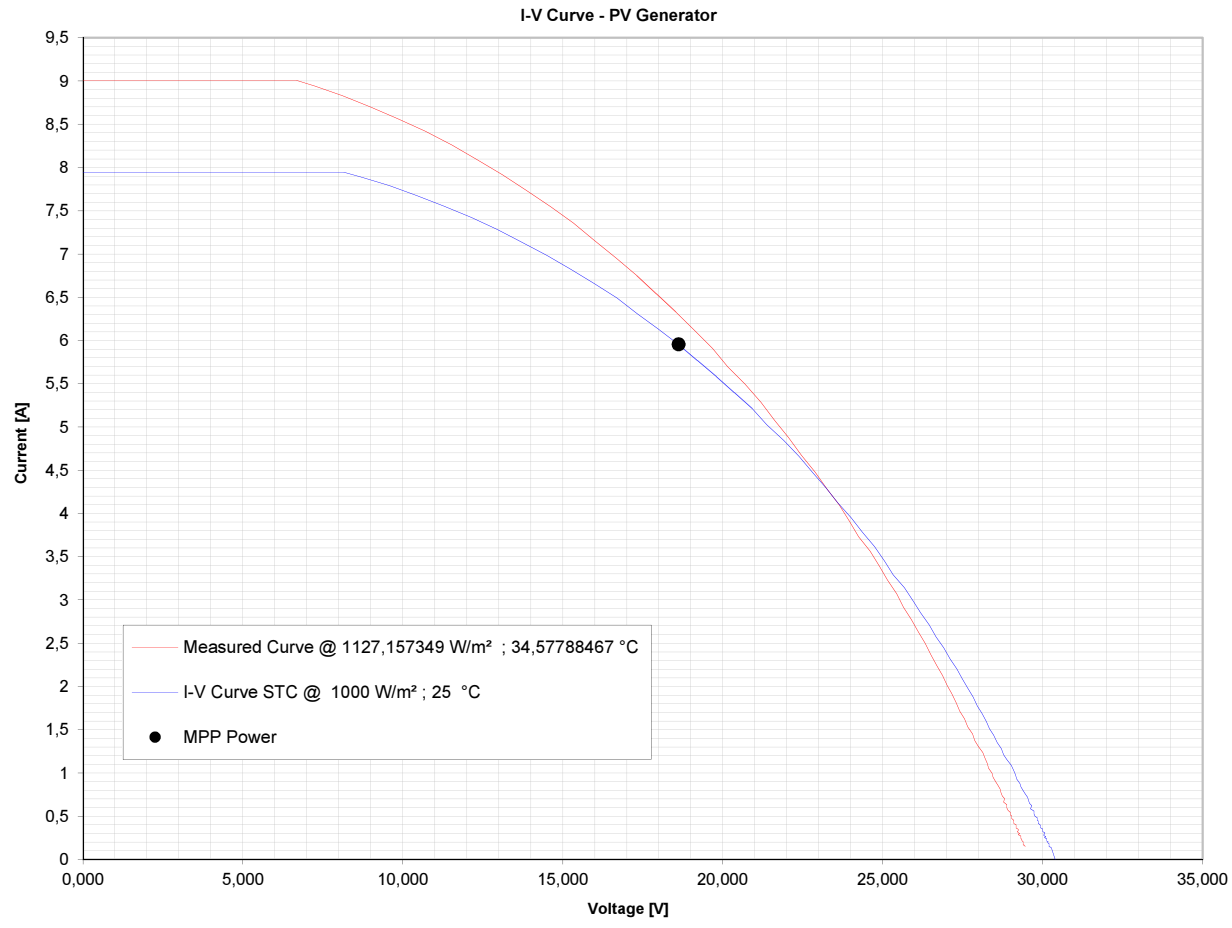
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:58:52**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		4603
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1127,157349
Module Temp. (PT1000)	[°C]	34,57788467
MPP Power	[W]	117,32
MPP Voltage	[V]	18,54
MPP Current	[A]	6,33
OC Voltage	[V]	29,60
SC Current	[A]	9,01
Fill factor	[%]	44,00

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**110,85**
MPP Voltage	[V]	18,62
MPP Current	[A]	5,95
OC Voltage	[V]	30,39
SC Current	[A]	7,95
Fill factor	[%]	45,90



Peak power deviation @ STC	**-54,76%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

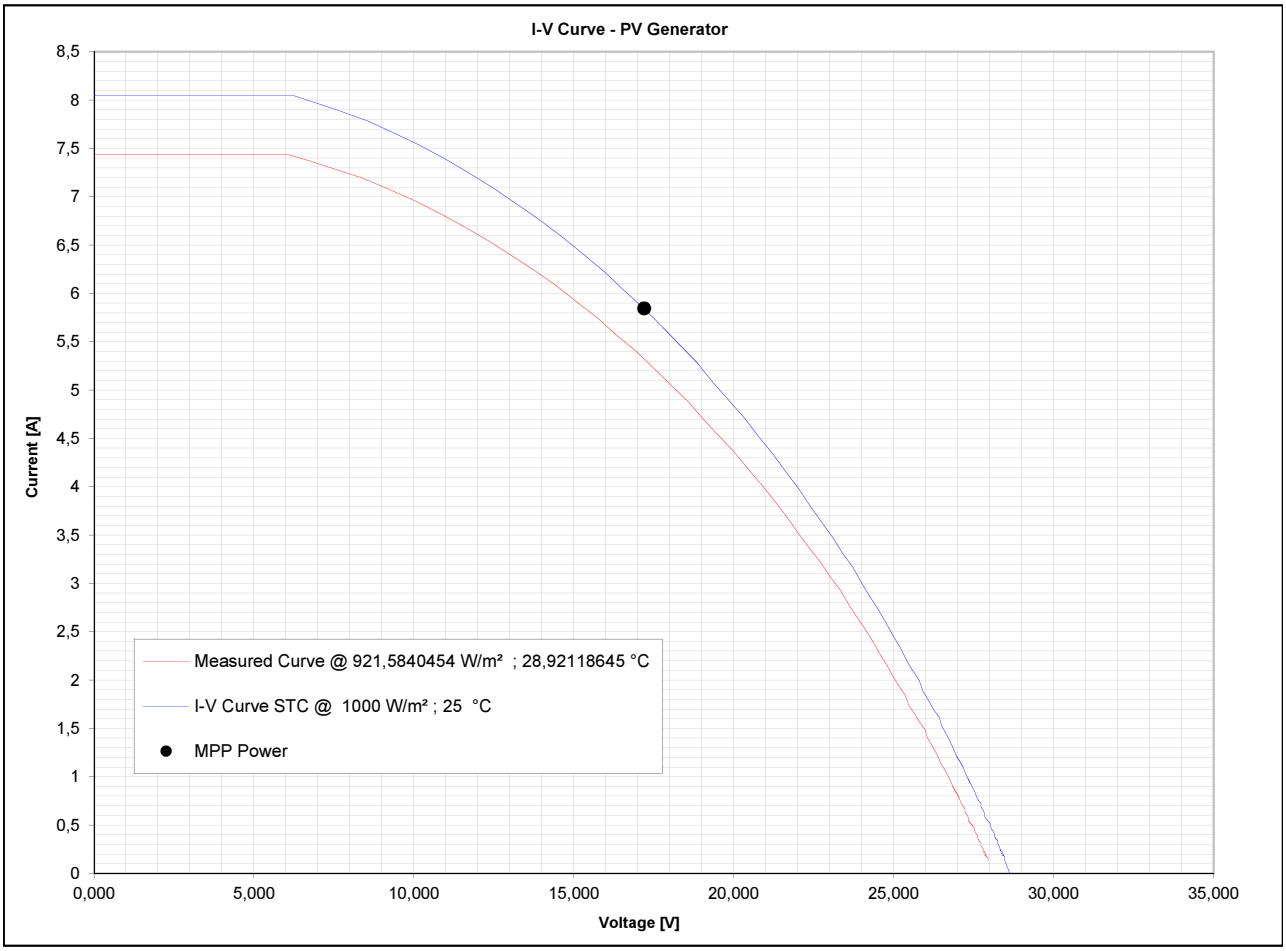
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:55:22**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		4603
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	921,5840454
Module Temp. (PT1000)	[°C]	28,92118645
MPP Power	[W]	91,56
MPP Voltage	[V]	16,95
MPP Current	[A]	5,40
OC Voltage	[V]	28,10
SC Current	[A]	7,43
Fill factor	[%]	43,83

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**100,54**
MPP Voltage	[V]	17,20
MPP Current	[A]	5,85
OC Voltage	[V]	28,63
SC Current	[A]	8,05
Fill factor	[%]	43,64



Peak power deviation @ STC	**-58,96%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

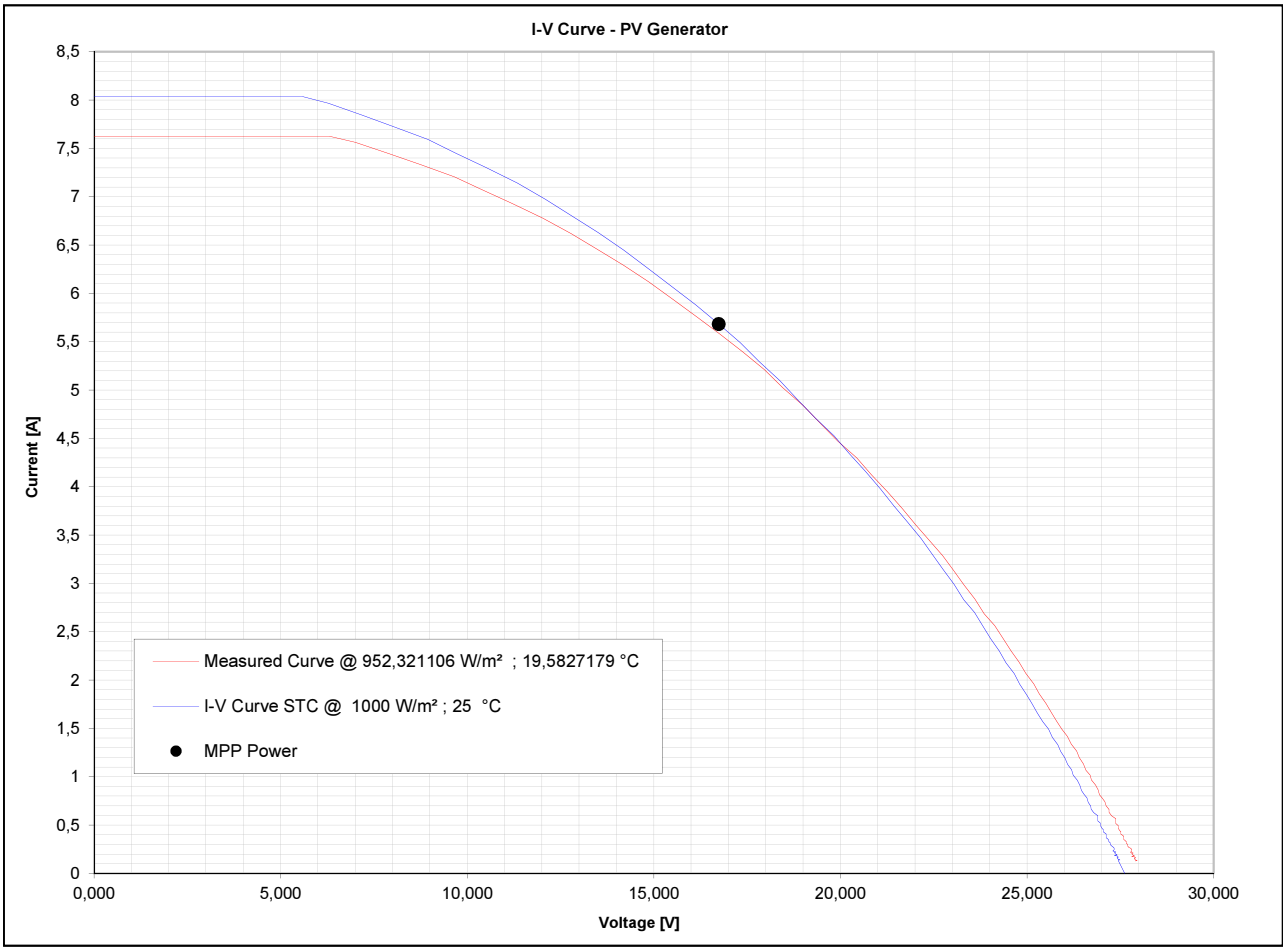
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:33:54**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4603
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	952,321106
Module Temp. (PT1000)	[°C]	19,5827179
MPP Power	[W]	93,76
MPP Voltage	[V]	17,39
MPP Current	[A]	5,39
OC Voltage	[V]	28,08
SC Current	[A]	7,63
Fill factor	[%]	43,77

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**95,13**
MPP Voltage	[V]	16,74
MPP Current	[A]	5,68
OC Voltage	[V]	27,62
SC Current	[A]	8,04
Fill factor	[%]	42,85



Peak power deviation @ STC	**-61,17%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

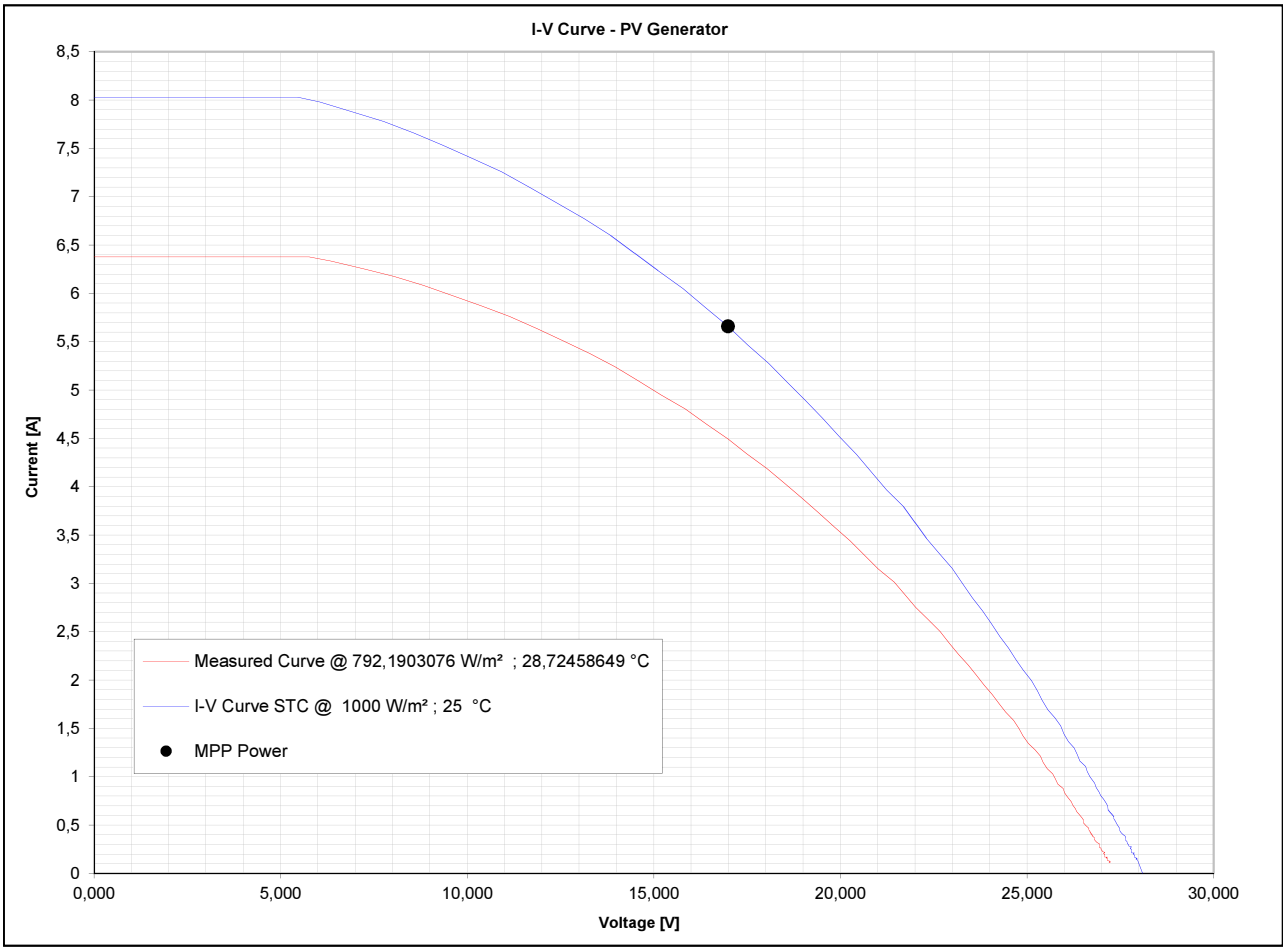
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:19:14**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4603
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	792,1903076
Module Temp. (PT1000)	[°C]	28,72458649
MPP Power	[W]	76,34
MPP Voltage	[V]	16,99
MPP Current	[A]	4,49
OC Voltage	[V]	27,35
SC Current	[A]	6,38
Fill factor	[%]	43,76

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**96,14**
MPP Voltage	[V]	16,99
MPP Current	[A]	5,66
OC Voltage	[V]	28,10
SC Current	[A]	8,03
Fill factor	[%]	42,60



Peak power deviation @ STC	**-60,76%**
Peak power deviation @ STC considering dust	**-**

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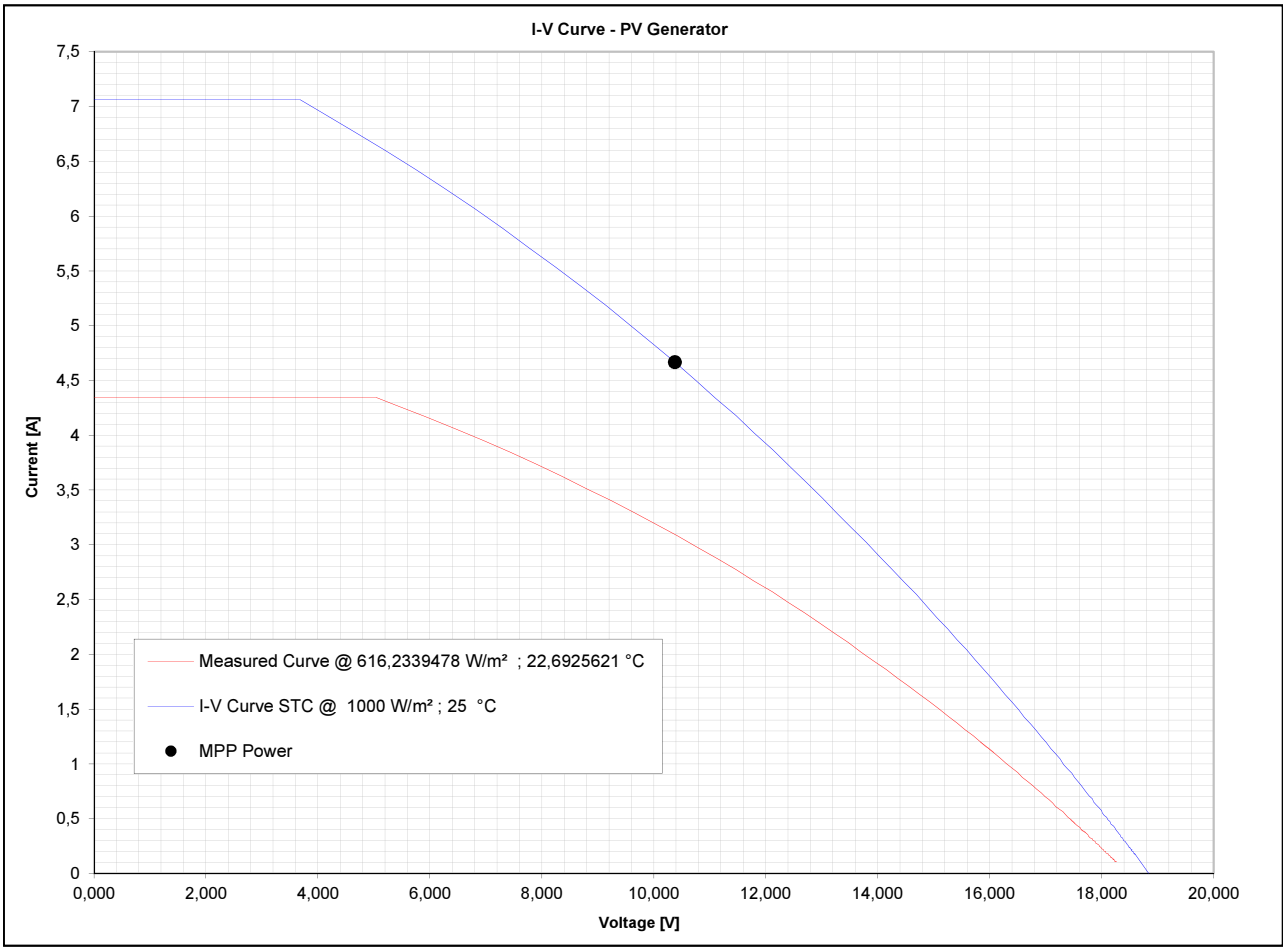
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **15:34:18**

PV-GENERATOR DESCRIPTION		**SERIAL NUMBER**		4656
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-247			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	616,2339478
Module Temp. (PT1000)	[°C]	22,6925621
MPP Power	[W]	32,11
MPP Voltage	[V]	10,42
MPP Current	[A]	3,08
OC Voltage	[V]	18,46
SC Current	[A]	4,35
Fill factor	[%]	40,02

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**48,43**
MPP Voltage	[V]	10,38
MPP Current	[A]	4,67
OC Voltage	[V]	18,84
SC Current	[A]	7,06
Fill factor	[%]	36,40



Peak power deviation @ STC	**-80,23%**
Peak power deviation @ STC considering dust	**-**

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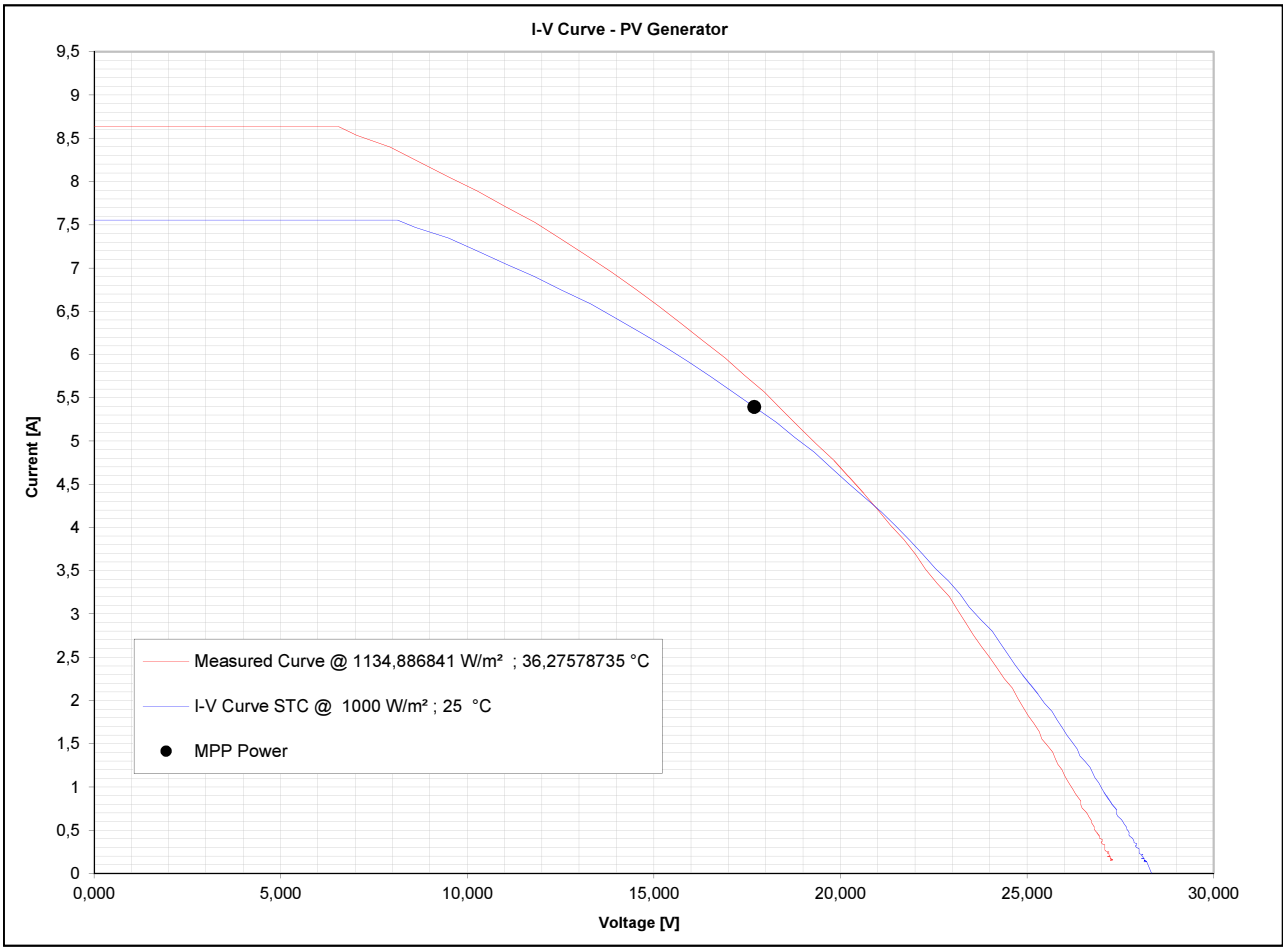
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:51:34**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4656
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1134,886841
Module Temp. (PT1000)	[°C]	36,27578735
MPP Power	[W]	100,82
MPP Voltage	[V]	16,92
MPP Current	[A]	5,96
OC Voltage	[V]	27,45
SC Current	[A]	8,63
Fill factor	[%]	42,54

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**95,40**
MPP Voltage	[V]	17,69
MPP Current	[A]	5,39
OC Voltage	[V]	28,34
SC Current	[A]	7,56
Fill factor	[%]	44,55



Peak power deviation @ STC	**-61,06%**
Peak power deviation @ STC considering dust	**-**

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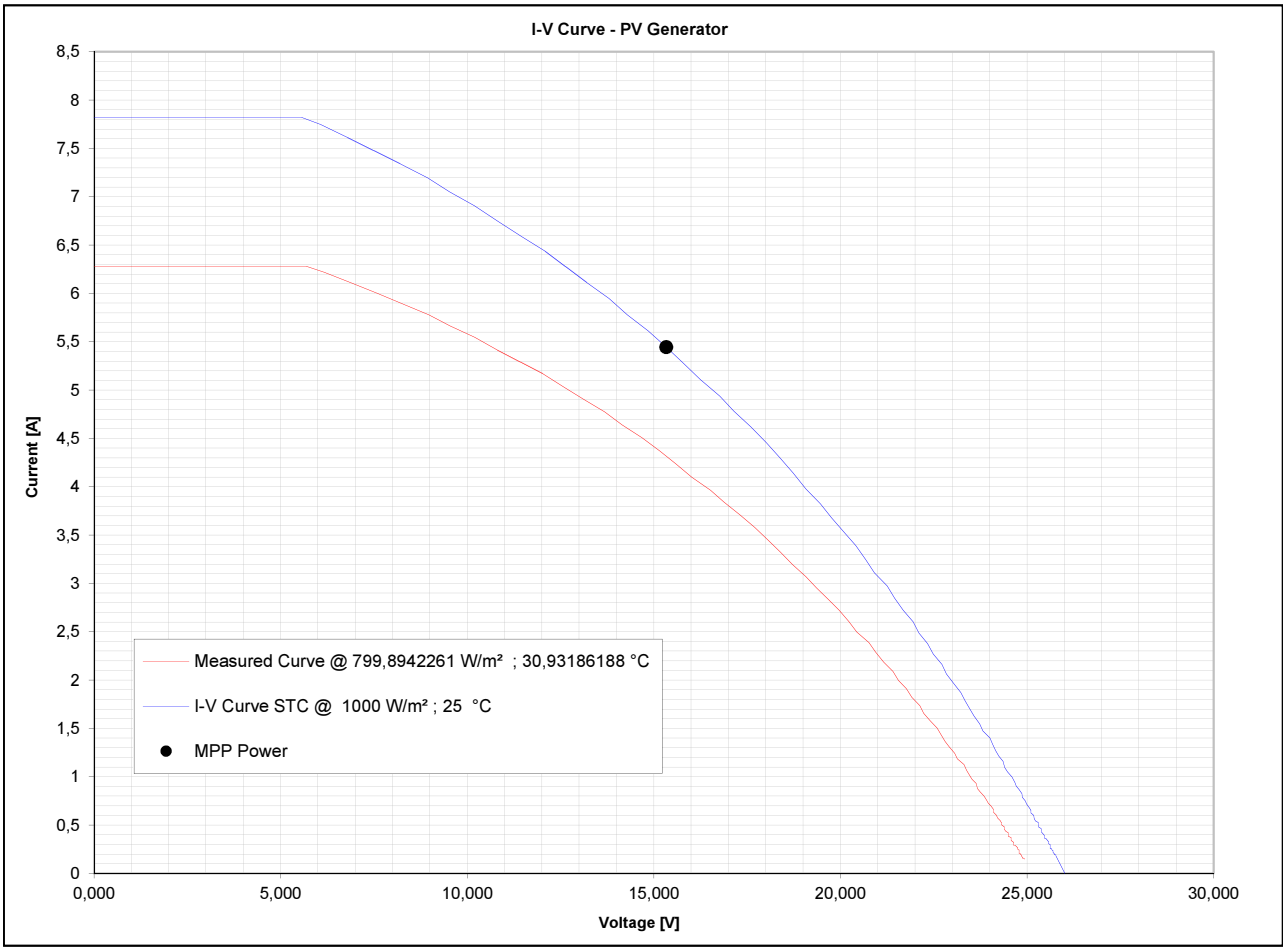
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:52:02**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4656
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	799,8942261
Module Temp. (PT1000)	[°C]	30,93186188
MPP Power	[W]	66,24
MPP Voltage	[V]	15,16
MPP Current	[A]	4,37
OC Voltage	[V]	25,15
SC Current	[A]	6,28
Fill factor	[%]	41,94

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**83,49**
MPP Voltage	[V]	15,34
MPP Current	[A]	5,44
OC Voltage	[V]	26,02
SC Current	[A]	7,82
Fill factor	[%]	41,02



Peak power deviation @ STC	**-65,92%**
Peak power deviation @ STC considering dust	**-**

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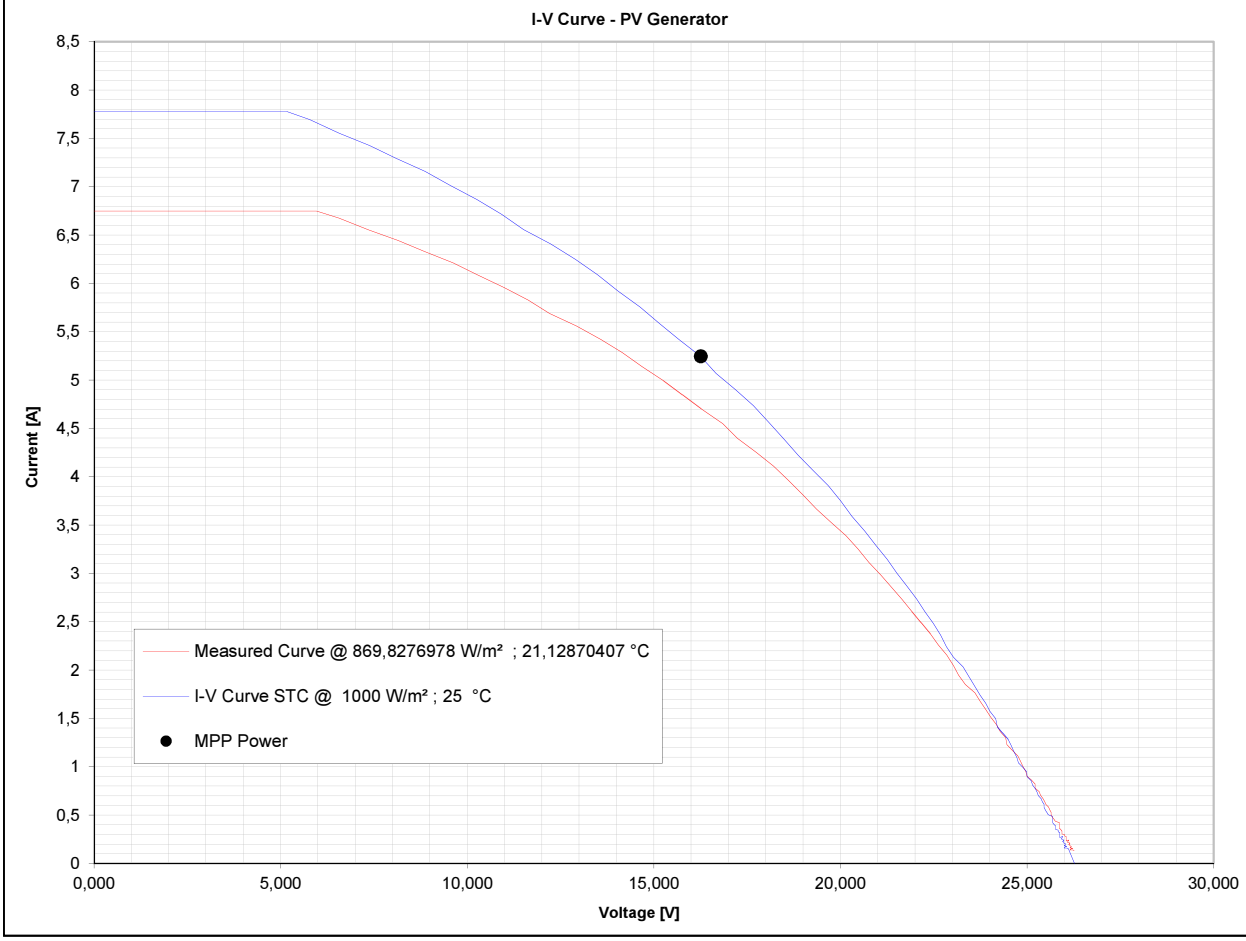
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:36:24**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4656
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	869,8276978
Module Temp. (PT1000)	[°C]	21,12870407
MPP Power	[W]	76,67
MPP Voltage	[V]	16,85
MPP Current	[A]	4,55
OC Voltage	[V]	26,41
SC Current	[A]	6,75
Fill factor	[%]	43,01

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**85,28**
MPP Voltage	[V]	16,26
MPP Current	[A]	5,24
OC Voltage	[V]	26,27
SC Current	[A]	7,78
Fill factor	[%]	41,74



Peak power deviation @ STC	**-65,19%**
Peak power deviation @ STC considering dust	**-**

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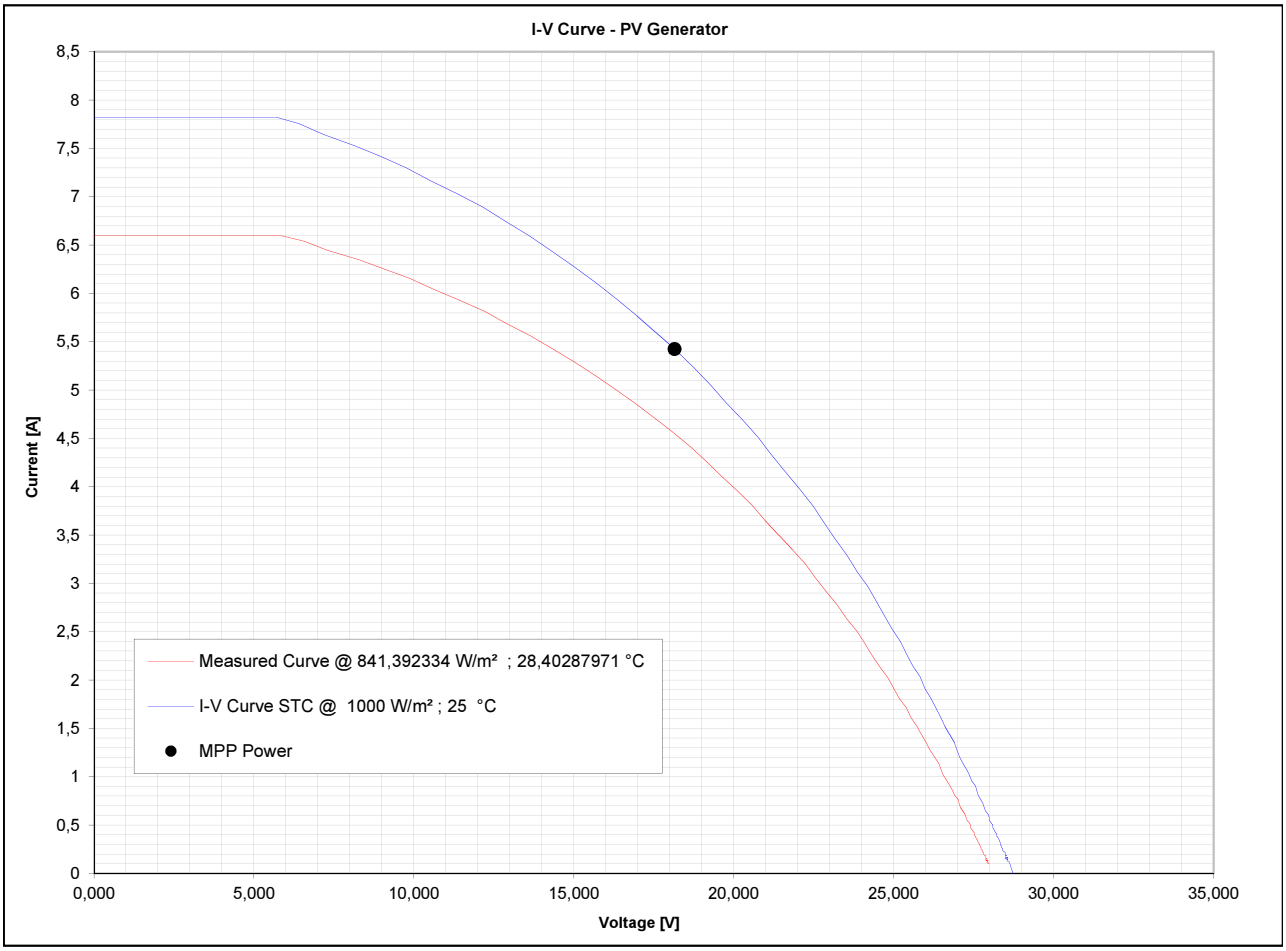
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:11:38**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4656
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	841,392334
Module Temp. (PT1000)	[°C]	28,40287971
MPP Power	[W]	82,63
MPP Voltage	[V]	18,07
MPP Current	[A]	4,57
OC Voltage	[V]	28,10
SC Current	[A]	6,60
Fill factor	[%]	44,57

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**98,47**
MPP Voltage	[V]	18,16
MPP Current	[A]	5,42
OC Voltage	[V]	28,73
SC Current	[A]	7,82
Fill factor	[%]	43,81



Peak power deviation @ STC	**-59,81%**
Peak power deviation @ STC considering dust	**-**

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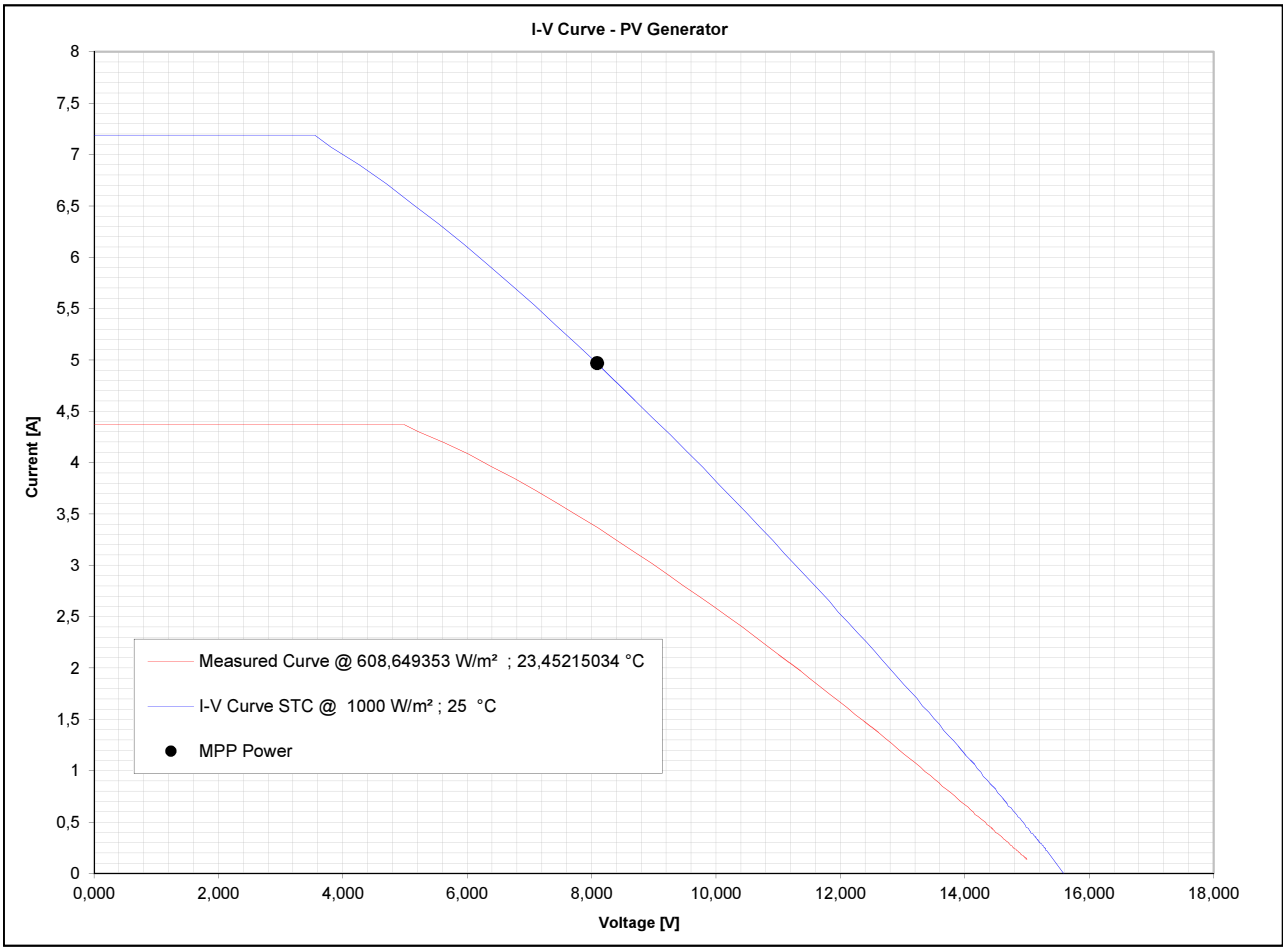
I-V CURVE REPORT:

Measure Date: **21-03-2014**
Measure Time: **17:07:44**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4665
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-258			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	608,649353
Module Temp. (PT1000)	[°C]	23,45215034
MPP Power	[W]	27,26
MPP Voltage	[V]	8,10
MPP Current	[A]	3,36
OC Voltage	[V]	15,22
SC Current	[A]	4,37
Fill factor	[%]	40,97

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**40,18**
MPP Voltage	[V]	8,09
MPP Current	[A]	4,97
OC Voltage	[V]	15,59
SC Current	[A]	7,19
Fill factor	[%]	35,85



Peak power deviation @ STC	**-83,60%**
Peak power deviation @ STC considering dust	**-**

TÜVRheinland®

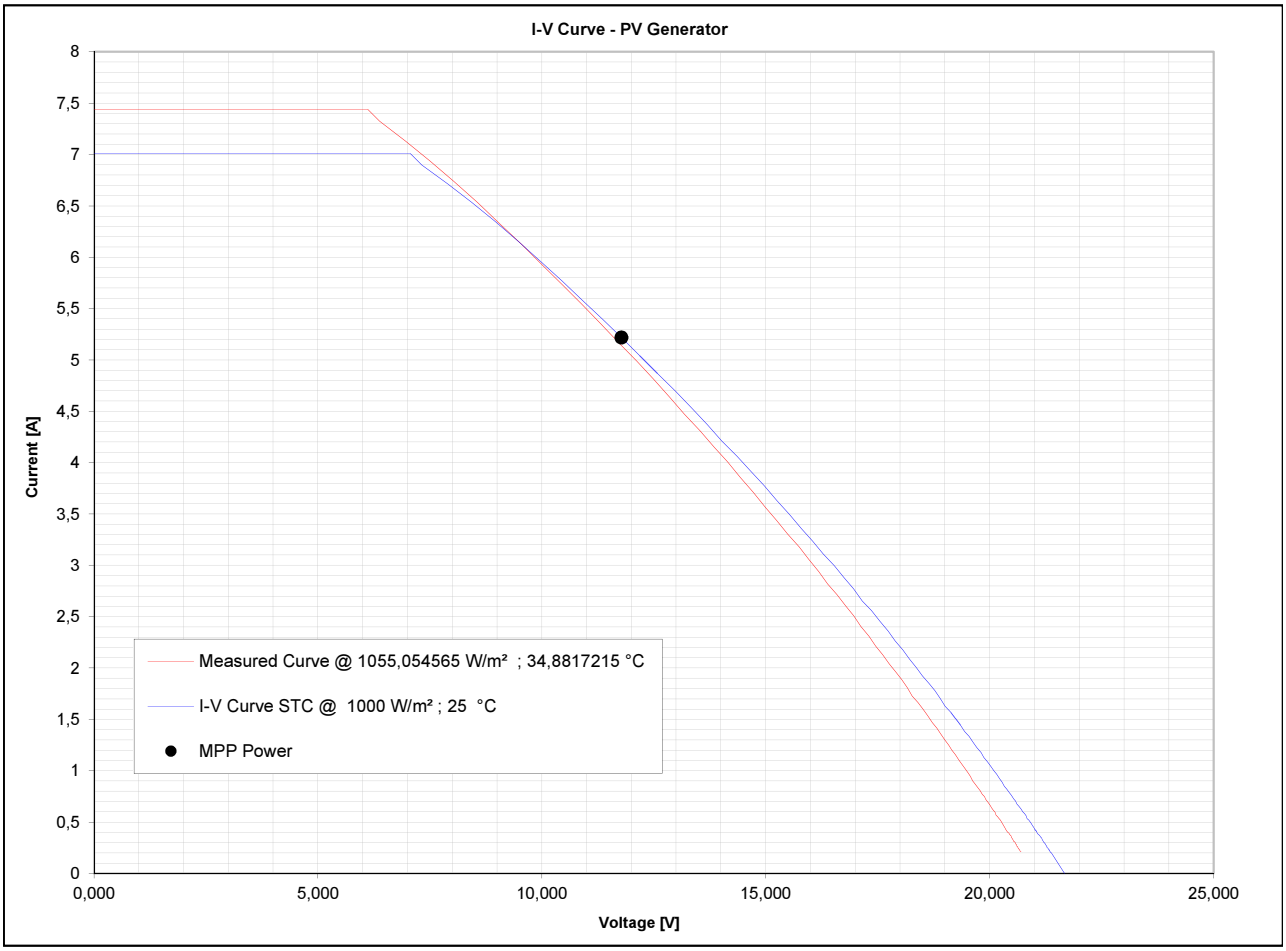
I-V CURVE REPORT:

Measure Date: **24-03-2014**
Measure Time: **13:59:40**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4665
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	1055,054565
Module Temp. (PT1000)	[°C]	34,8817215
MPP Power	[W]	60,57
MPP Voltage	[V]	11,72
MPP Current	[A]	5,17
OC Voltage	[V]	21,00
SC Current	[A]	7,44
Fill factor	[%]	38,76

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**61,46**
MPP Voltage	[V]	11,78
MPP Current	[A]	5,22
OC Voltage	[V]	21,67
SC Current	[A]	7,01
Fill factor	[%]	40,46



Peak power deviation @ STC	**-74,91%**
Peak power deviation @ STC considering dust	**-**

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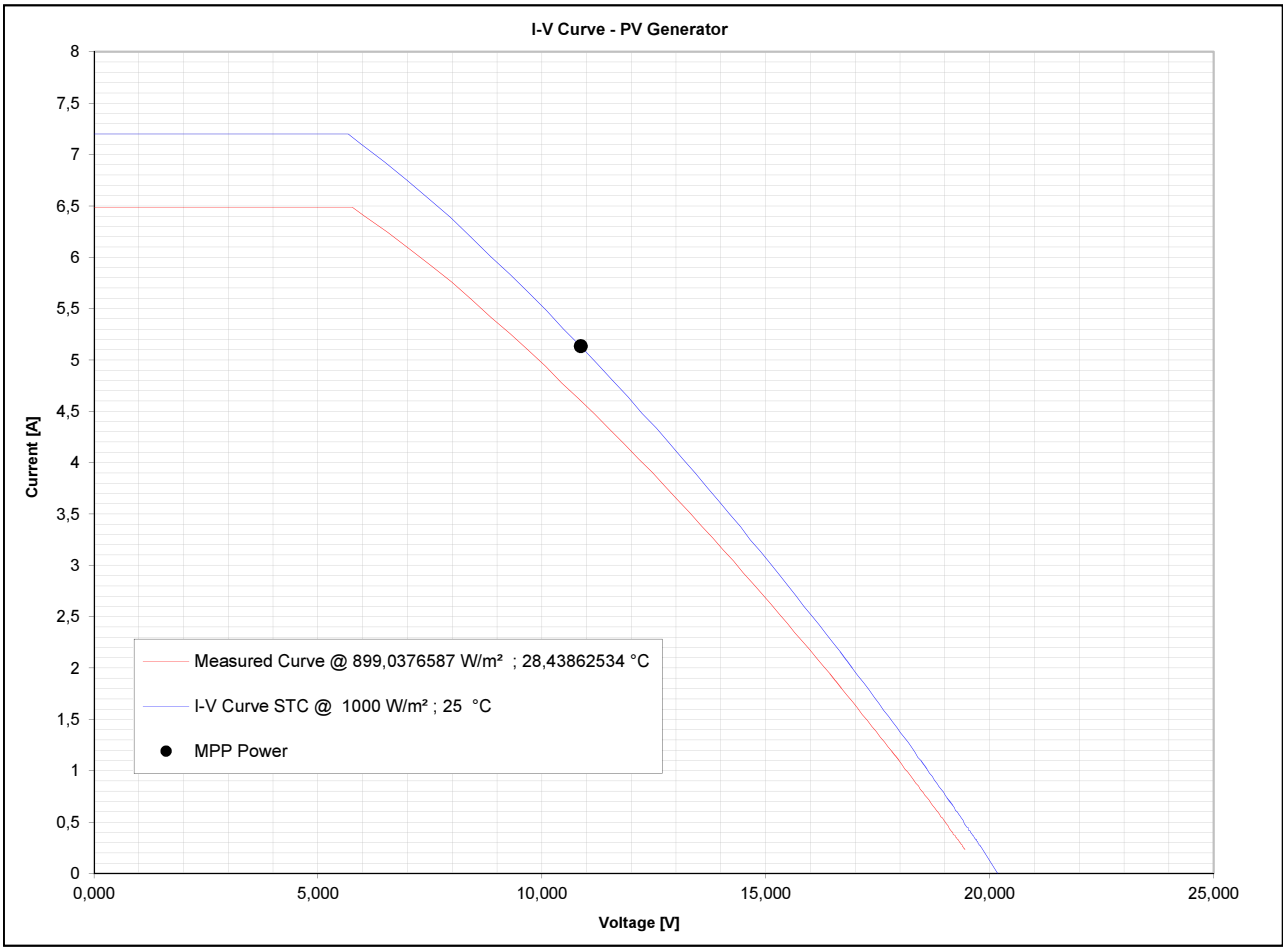
I-V CURVE REPORT:

Measure Date: **25-03-2014**
Measure Time: **13:56:22**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4665
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	899,0376587
Module Temp. (PT1000)	[°C]	28,43862534
MPP Power	[W]	50,05
MPP Voltage	[V]	10,83
MPP Current	[A]	4,62
OC Voltage	[V]	19,81
SC Current	[A]	6,49
Fill factor	[%]	38,95

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**55,78**
MPP Voltage	[V]	10,87
MPP Current	[A]	5,13
OC Voltage	[V]	20,18
SC Current	[A]	7,20
Fill factor	[%]	38,39



Peak power deviation @ STC	**-77,23%**
Peak power deviation @ STC considering dust	**-**

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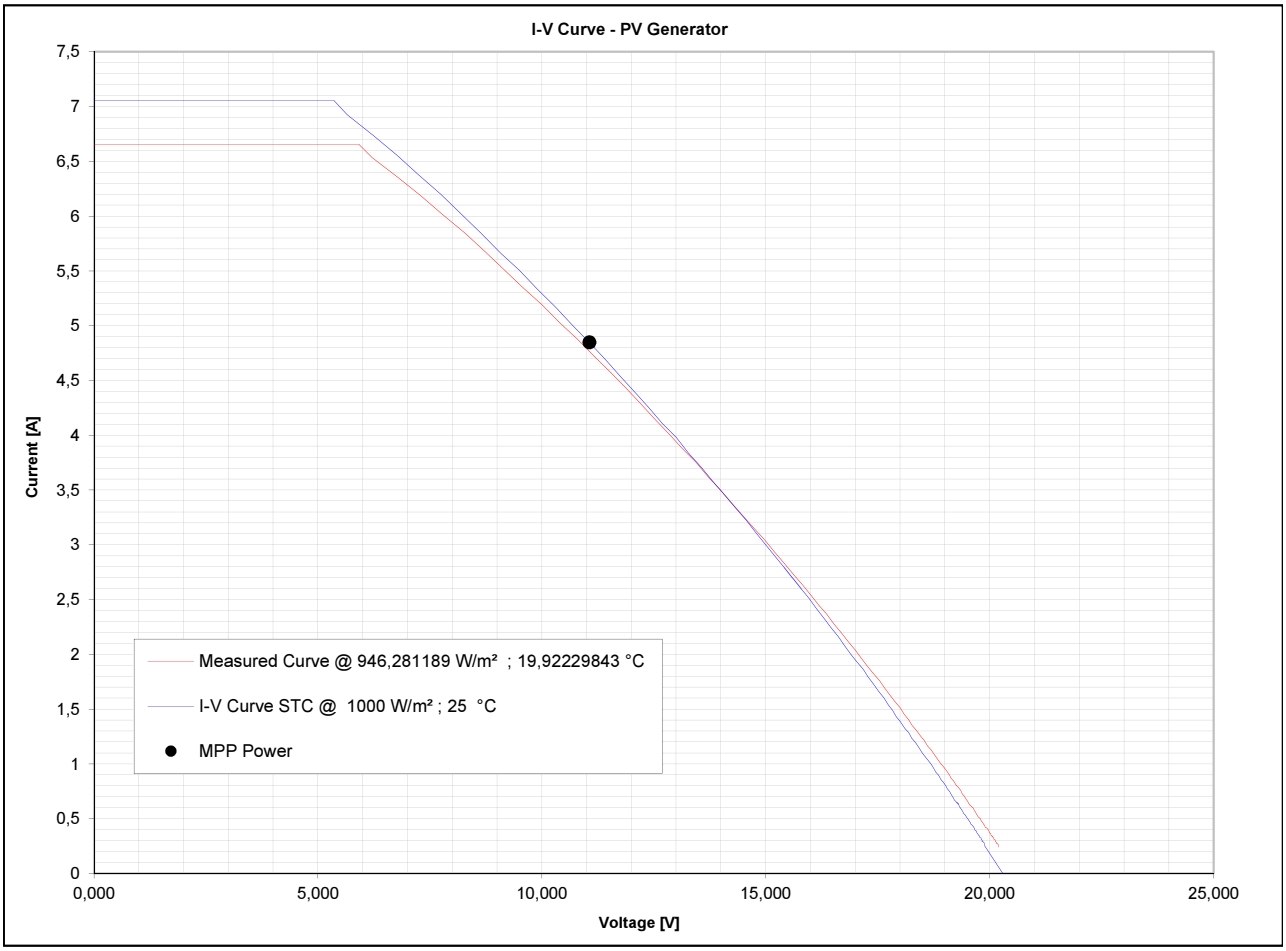
I-V CURVE REPORT:

Measure Date: **26-03-2014**
Measure Time: **14:35:34**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4665
PV Plant	Tessenderlo	LOCATION:	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	COMMENTS:	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	946,281189
Module Temp. (PT1000)	[°C]	19,92229843
MPP Power	[W]	52,78
MPP Voltage	[V]	11,54
MPP Current	[A]	4,57
OC Voltage	[V]	20,60
SC Current	[A]	6,66
Fill factor	[%]	38,49

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**53,62**
MPP Voltage	[V]	11,06
MPP Current	[A]	4,85
OC Voltage	[V]	20,30
SC Current	[A]	7,06
Fill factor	[%]	37,44



Peak power deviation @ STC	**-78,11%**
Peak power deviation @ STC considering dust	**-**

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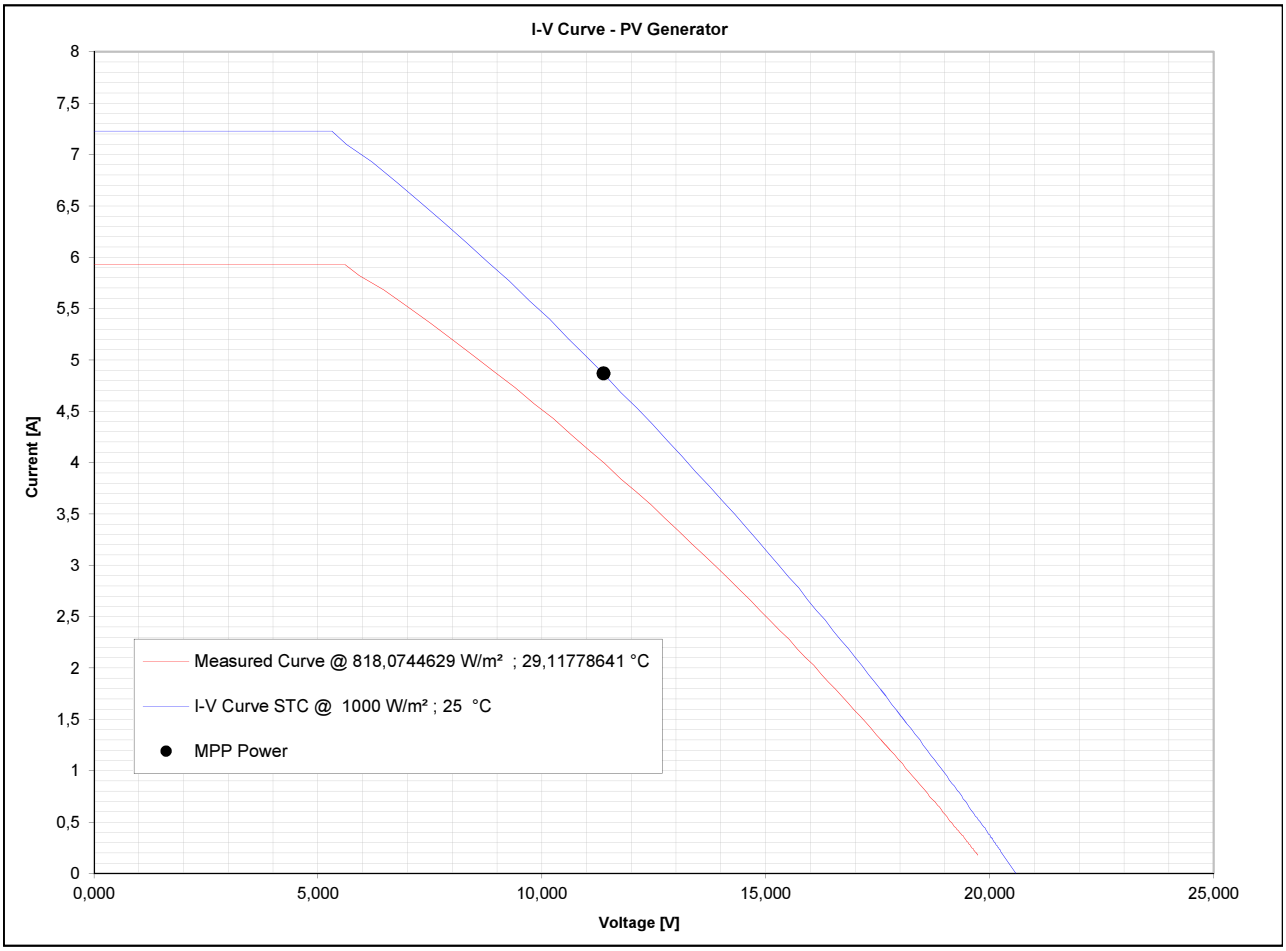
I-V CURVE REPORT:

Measure Date: **27-03-2014**
Measure Time: **15:17:18**

PV-GENERATOR DESCRIPTION		SERIAL NUMBER		4665
PV Plant	Tessenderlo	**LOCATION:**	*INV SC Sb*	See report
STC Power	245 Wp		*String*	
Module type	JAM6-60-261			
Connection pattern	1//1			
Type of structure	Roof installation	**COMMENTS:**	*Conditions*	no dust
			Other	none

MEASURED DATA:		
Irradiance	[W/m²] :	818,0744629
Module Temp. (PT1000)	[°C]	29,11778641
MPP Power	[W]	45,57
MPP Voltage	[V]	11,03
MPP Current	[A]	4,13
OC Voltage	[V]	20,05
SC Current	[A]	5,93
Fill factor	[%]	38,34

STC VALUES:		
Irradiance	[W/m²] :	1000
Module Temperature	[°C]	25
MPP Power	**[W]**	**55,38**
MPP Voltage	[V]	11,38
MPP Current	[A]	4,87
OC Voltage	[V]	20,59
SC Current	[A]	7,23
Fill factor	[%]	37,22



Peak power deviation @ STC	**-77,40%**
Peak power deviation @ STC considering dust	**-**