

Testcenter Serial: 6001_Zora

Job ID: Scan4_31082020

Address: TUAS / Joukahaisenkatu 7

Country / City: FI 2520 Turku

Number of Modules: 6

Module Type/Description: WEAMERISOLAR AS-6M30-310WBlack

PMPP NOM[W]: 310W

Comments:

The study was performed by TUAS MOBILE SOLAR Lab, calibrated 28.2.2020 by MBJ Services GmbH. The reference used for the characterization was TURU002 / 1K00008597 Mono Reference Module, calibrated at 27.3.2020 by Fraunhofer ISE – CalLab PV Modules, accredited by Deutsche Akkreditierungsstelle GmbH.

The expanded measurement uncertainty for the measured module type is 2.5% with a probability of 95%. By the modules nominal Power of 310 Wp this means a range from 302...318 Wp.

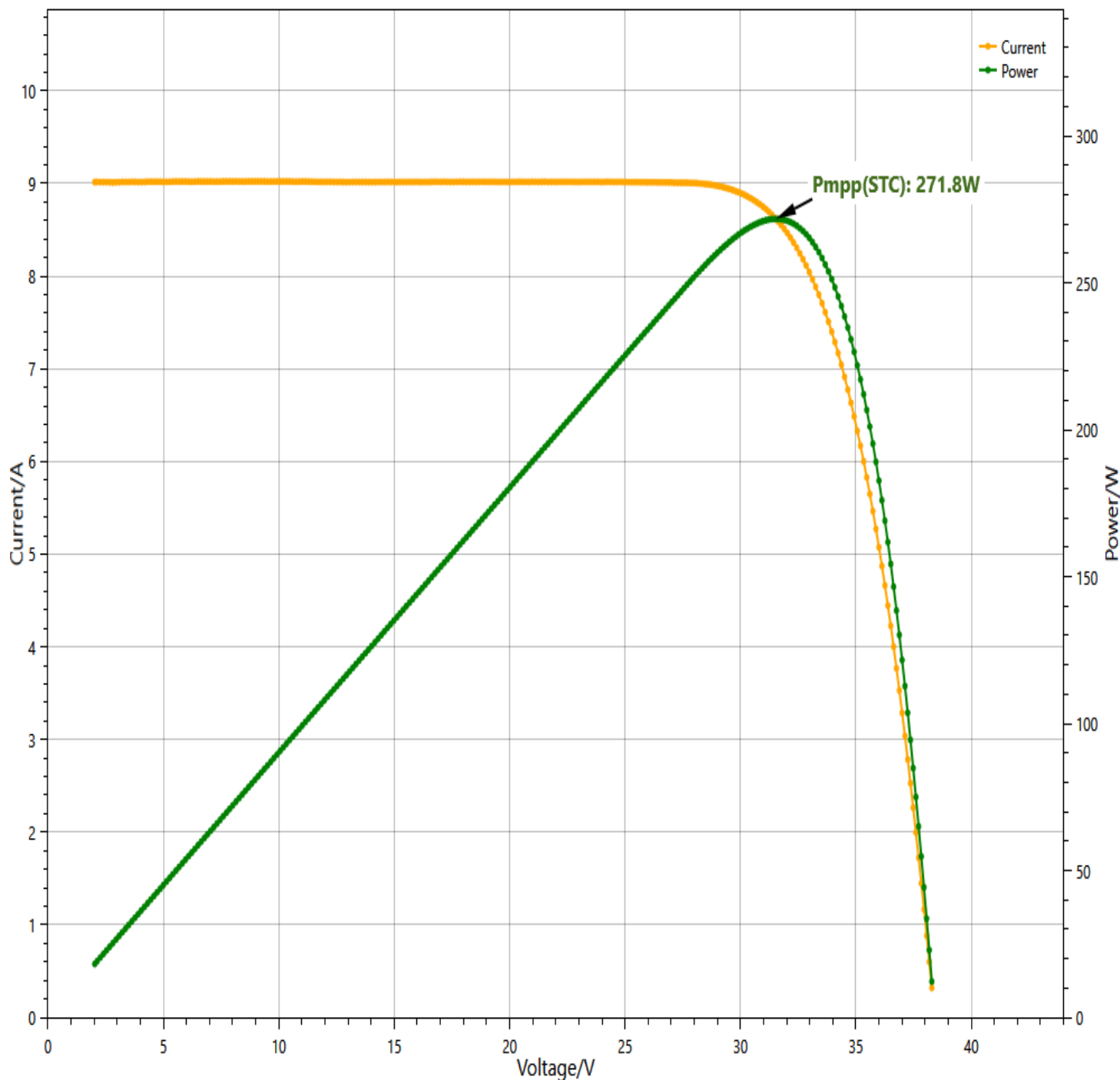
The average power of the measured modules was 274.15 Wp, with a maximum of 276,3 Wp and a minimum of 271.8 Wp. In the module's EL images no signs of cracking or mismatch were found.

MBJ Unique ID: 600120200831160550

Module ID: 668821912100101

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
IEC60891 STC	271.8	8.62	31.53	9.01	38.41	1000.0	78.5
Measured	273.6	8.62	31.73	9.06	38.33	1001.8	78.7

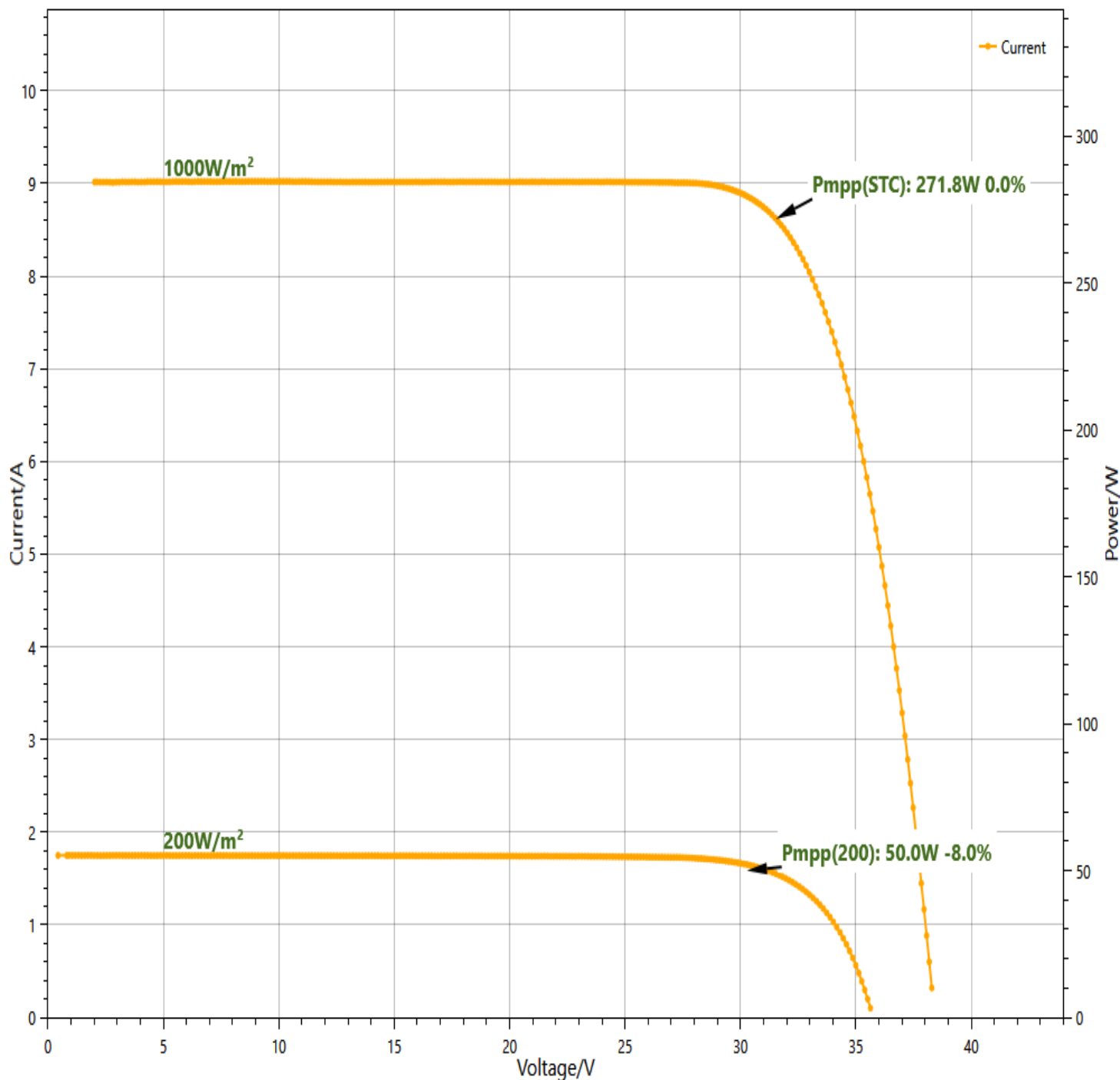
Tmod[°C]:25.7	Tref[°C]:26.0	Tfl[°C]:26.33	Tout[°C]:n/a	T[ms]:135.0
Type:Mono	alpha[%]:0.052	beta[%]:-0.290		
IEC aICF:0.060	IEC Rs[Ohm]:0.01	kappa[mOhm/K]:3.00		
Software:748p		Reference: ISE_Mono_Reference		
		TF: 1.000, FFCorr: -0.899%		

MBJ Unique ID: 600120200831160550

Module ID: 668821912100101

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



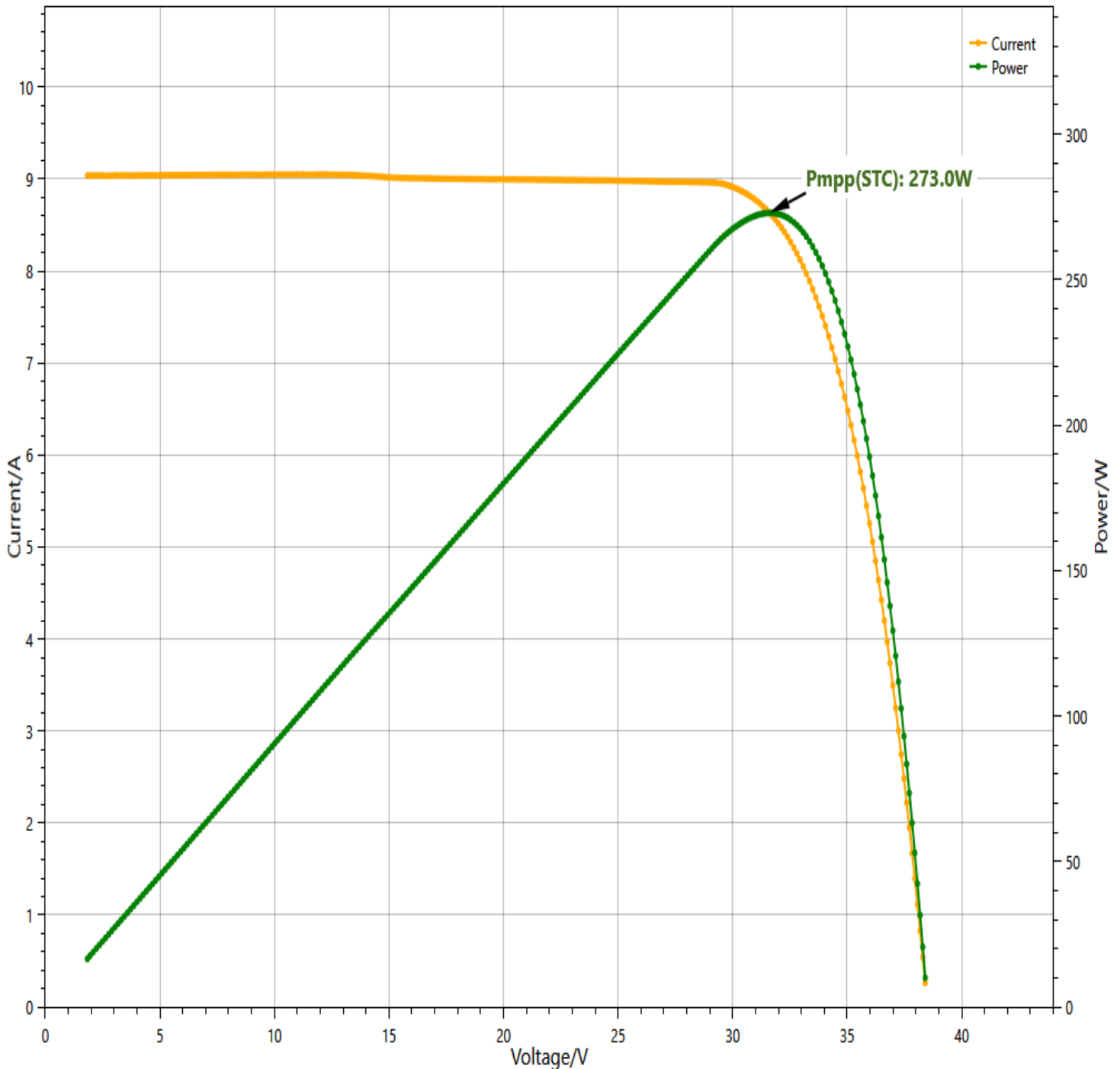
IEC60891 Irr [W/m2]	200	1000
IEC60891 Pmpp [W]	50.0	271.8
Module Eff [%]	15.4	16.7
Eff Delta [%]	-8.0	0.0
Measured [W/m2]	203.8	1001.8
Module Width/Height (Portrait) [mm]:	992*1640	

MBJ Unique ID: 600120200901084955

Module ID: 668821912100112

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



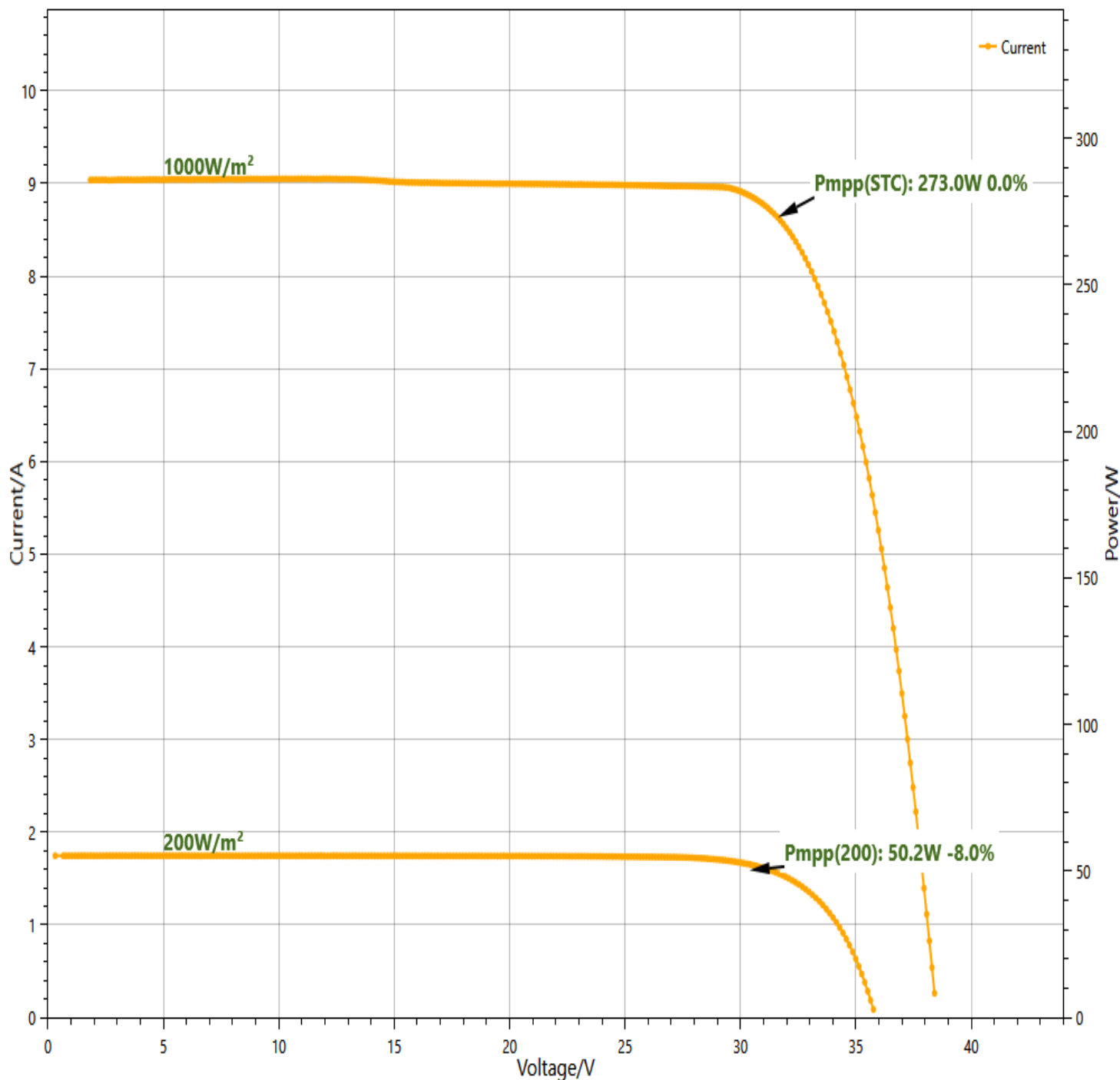
	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
IEC60891 STC	273.0	8.64	31.62	9.03	38.51	1000.0	78.5
Measured	277.5	8.68	31.98	9.12	38.57	1005.4	78.9
Tmod[°C]:24.5	Tref[°C]:24.3		Tfl[°C]:26.05		Tout[°C]:n/a		T[ms]:136.0
Type:Mono	alpha[%]:0.052		beta[%]:-0.290				
IEC aICF:0.060	IEC Rs[Ohm]:0.01		kappa[mOhm/K]:3.00				
Software:748p			Reference: ISE_Mono_Reference				
			TF: 1.000, FFCorr: -0.899%				

MBJ Unique ID: 600120200901084955

Module ID: 668821912100112

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



IEC60891 Irr [W/m2]	200	1000
IEC60891 Pmpp [W]	50.2	273.0
Module Eff [%]	15.4	16.8
Eff Delta [%]	-8.0	0.0

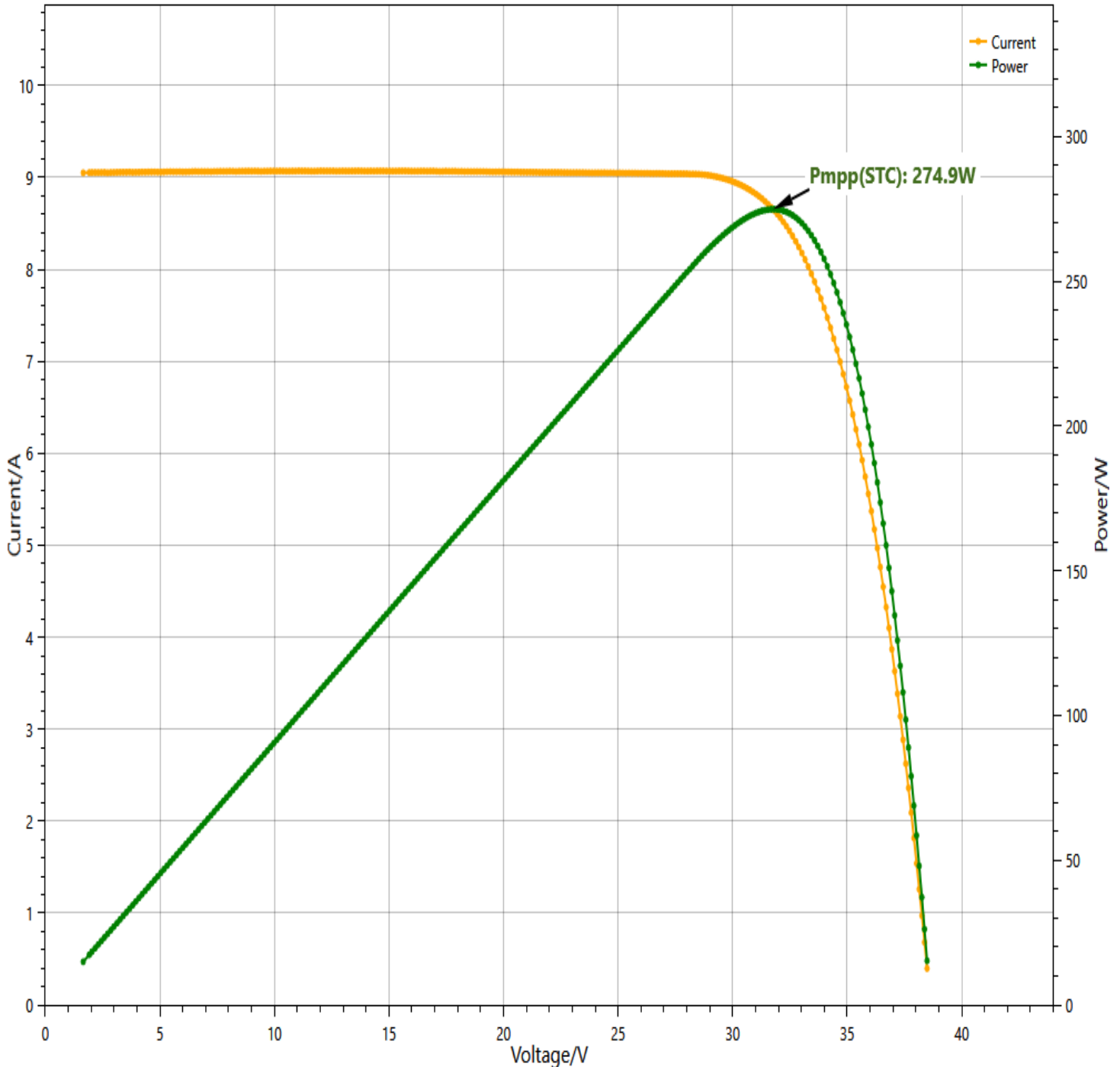
Measured [W/m2] 204.5 1005.4
Module Width/Height (Portrait) [mm]:992*1640

MBJ Unique ID: 600120200901095013

Module ID: 668821912100118

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



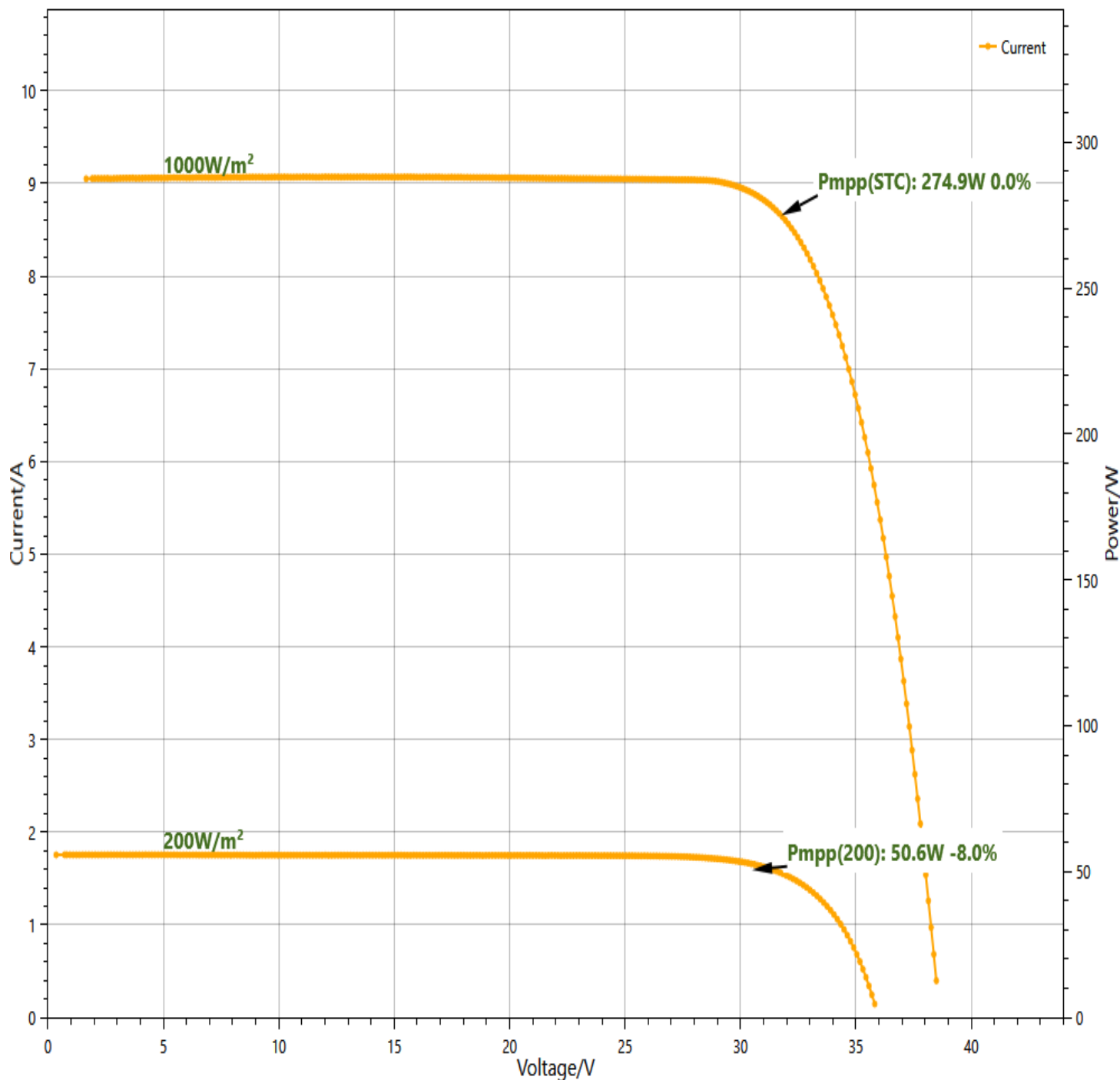
	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
IEC60891 STC	274.9	8.66	31.76	9.05	38.64	1000.0	78.6
Measured	278.0	8.67	32.05	9.11	38.64	1003.1	78.9
Tmod[°C]:25.0	Tref[°C]:25.3		Tfl[°C]:27.27		Tout[°C]:n/a		T[ms]:136.5
Type:Mono	alpha[%]:0.052		beta[%]:-0.290				
IEC aICF:0.060	IEC Rs[Ohm]:0.01		kappa[mOhm/K]:3.00				
Software:748p	Reference: ISE_Mono_Reference						
	TF: 1.000, FFCorr: -0.899%						

MBJ Unique ID: 600120200901095013

Module ID: 668821912100118

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



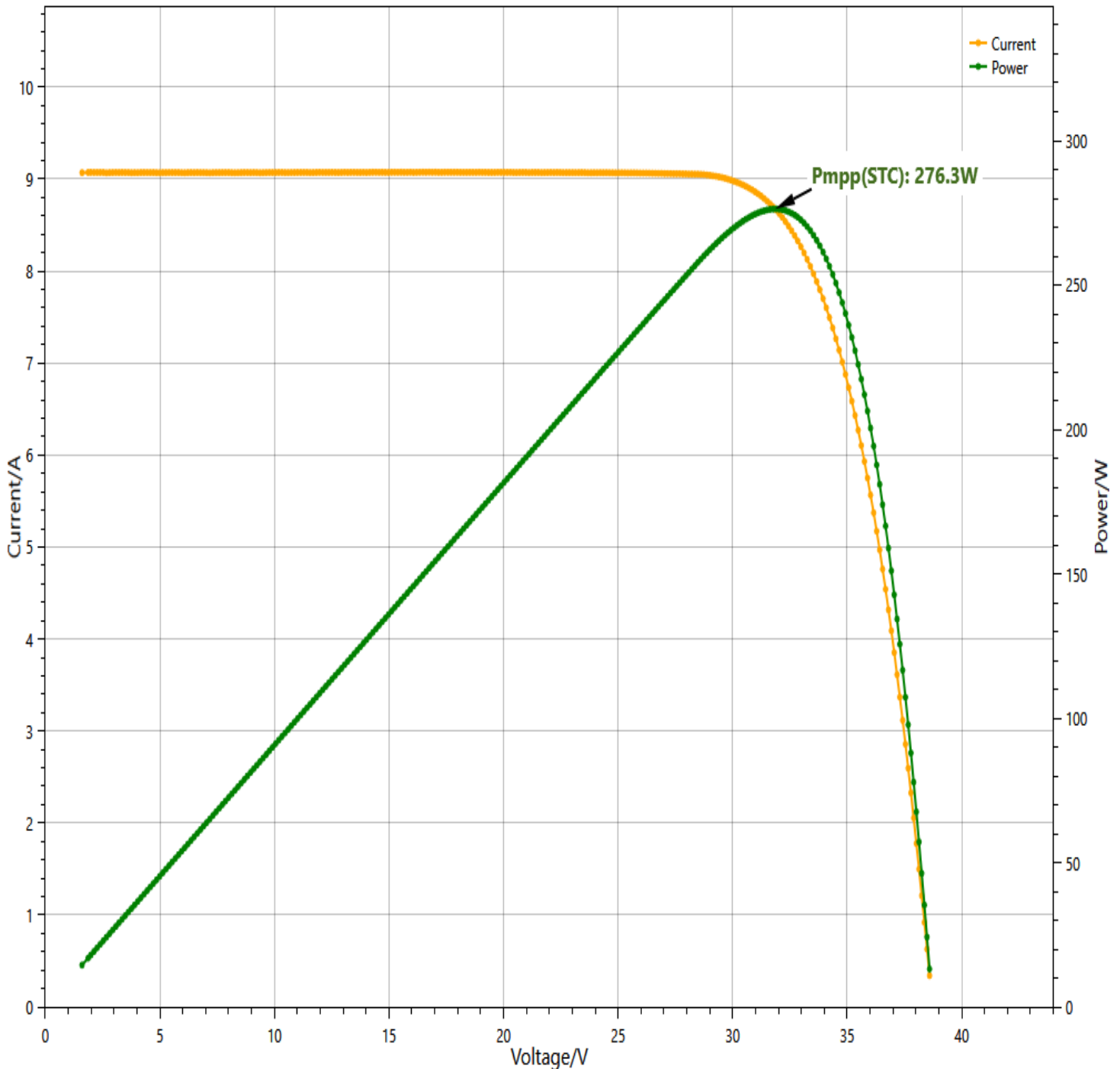
IEC60891 Irr [W/m2]	200	1000
IEC60891 Pmpp [W]	50.6	274.9
Module Eff [%]	15.5	16.9
Eff Delta [%]	-8.0	0.0
Measured [W/m2]	203.9	1003.1
Module Width/Height (Portrait) [mm]:	992*1640	

MBJ Unique ID: 600120200901093551

Module ID: 668821912100119

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
IEC60891 STC	276.3	8.68	31.85	9.07	38.72	1000.0	78.6
Measured	279.7	8.70	32.17	9.14	38.75	1003.4	79.0

Tmod[°C]:24.8	Tref[°C]:25.2	Tfl[°C]:25.97	Tout[°C]:n/a	T[ms]:137.0
Type:Mono	alpha[%]:0.052	beta[%]:-0.290		
IEC aICF:0.060	IEC Rs[Ohm]:0.01	kappa[mOhm/K]:3.00		
Software:748p		Reference: ISE_Mono_Reference		

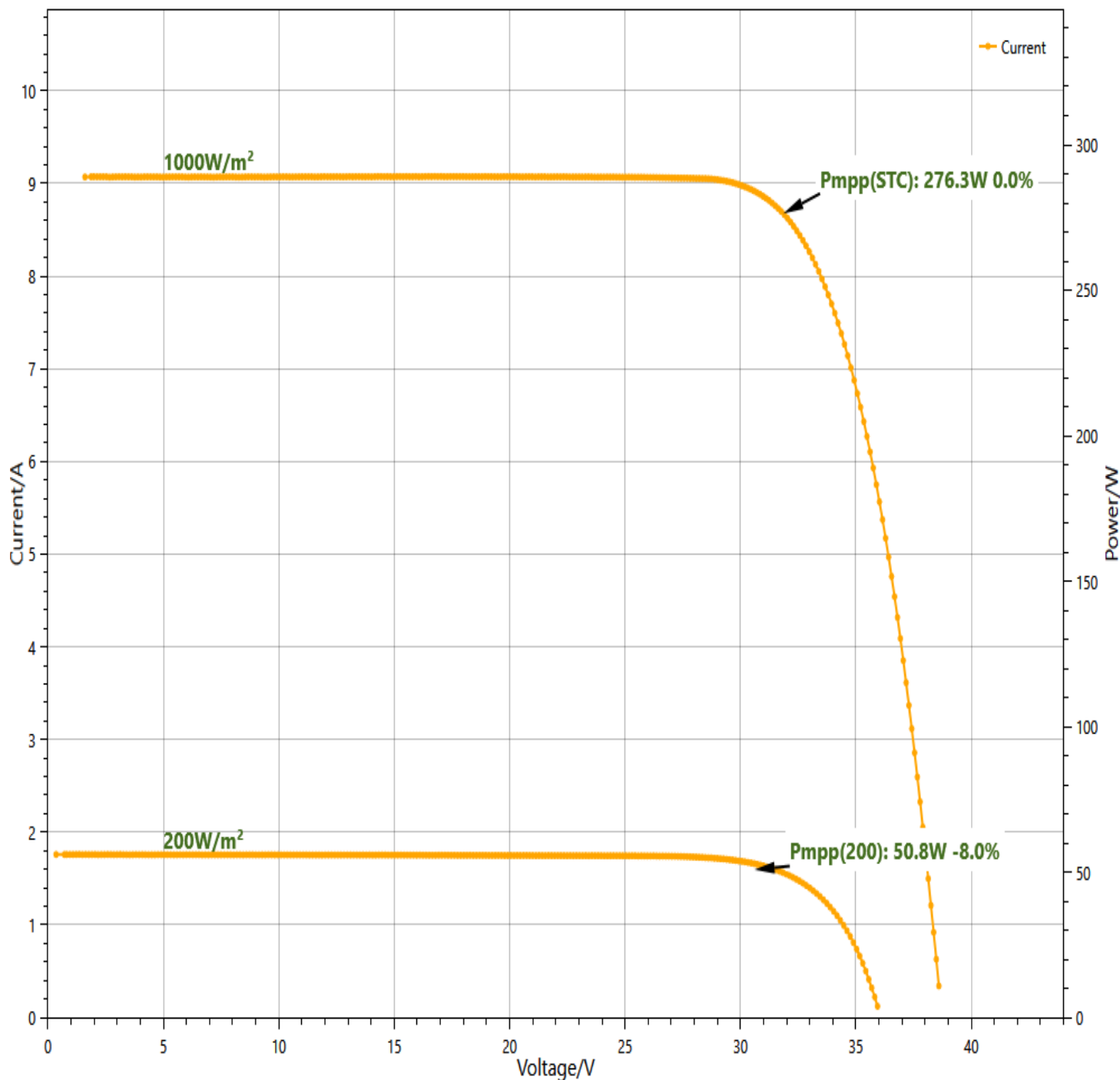
TF: 1.000, FFCorr: -0.899%

MBJ Unique ID: 600120200901093551

Module ID: 668821912100119

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



IEC60891 Irr [W/m2]	200	1000
IEC60891 Pmpp [W]	50.8	276.3
Module Eff [%]	15.6	17.0
Eff Delta [%]	-8.0	0.0

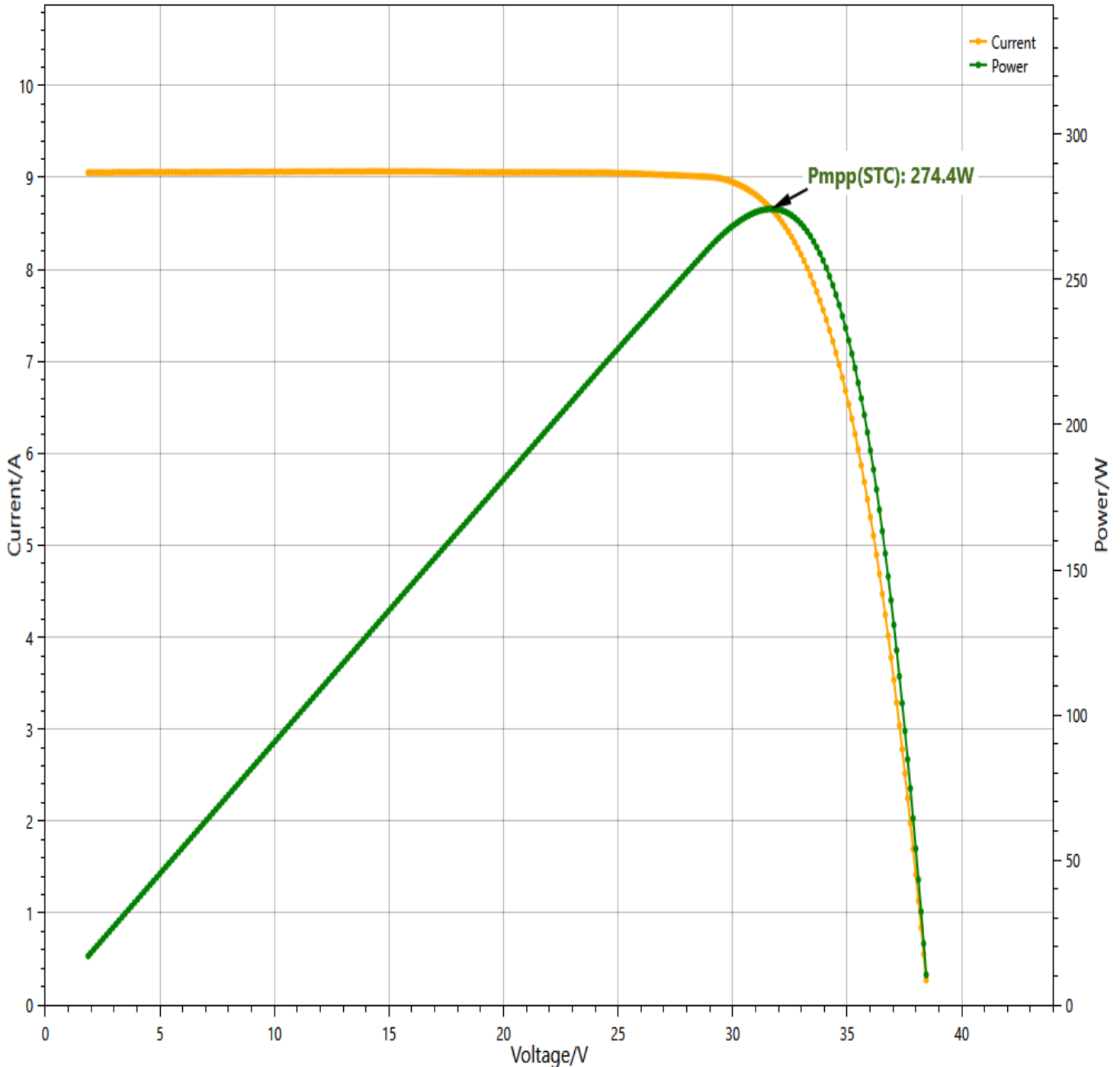
Measured [W/m2] 204.0 1003.4
Module Width/Height (Portrait) [mm]:992*1640

MBJ Unique ID: 600120200831163308

Module ID: 668821912100123

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
IEC60891 STC	274.4	8.66	31.69	9.05	38.55	1000.0	78.6
Measured	277.3	8.66	32.01	9.10	38.58	1001.7	79.0

Tmod[°C]:24.7	Tref[°C]:26.1	Tfl[°C]:25.99	Tout[°C]:n/a	T[ms]:136.0
Type:Mono	alpha[%]:0.052	beta[%]:-0.290		
IEC aICF:0.060	IEC Rs[Ohm]:0.01	kappa[mOhm/K]:3.00		
Software:748p		Reference: ISE_Mono_Reference		

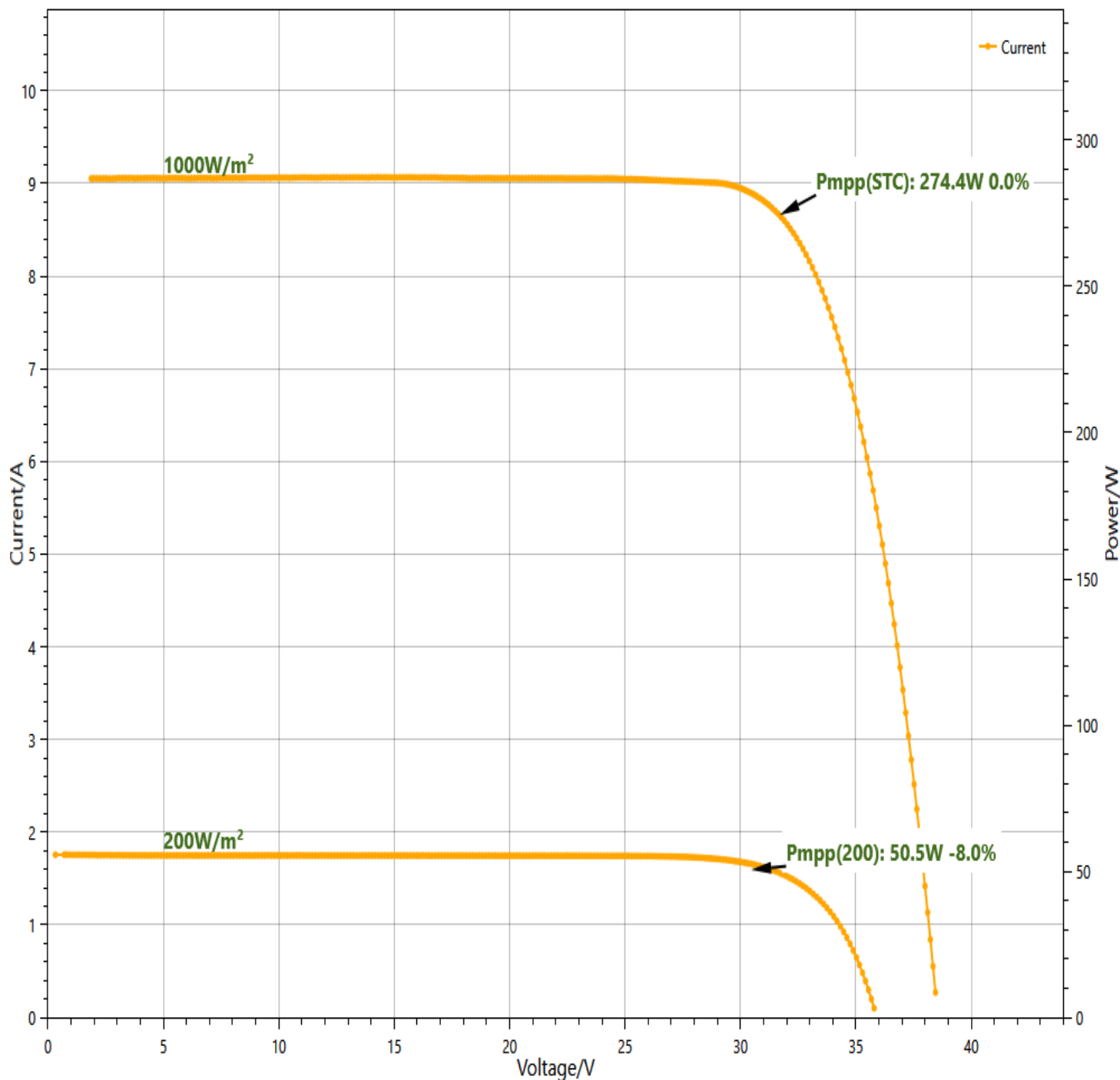
TF: 1.000, FFCorr: -0.899%

MBJ Unique ID: 600120200831163308

Module ID: 668821912100123

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



IEC60891 Irr [W/m2]	200	1000
IEC60891 Pmpp [W]	50.5	274.4
Module Eff [%]	15.5	16.9
Eff Delta [%]	-8.0	0.0

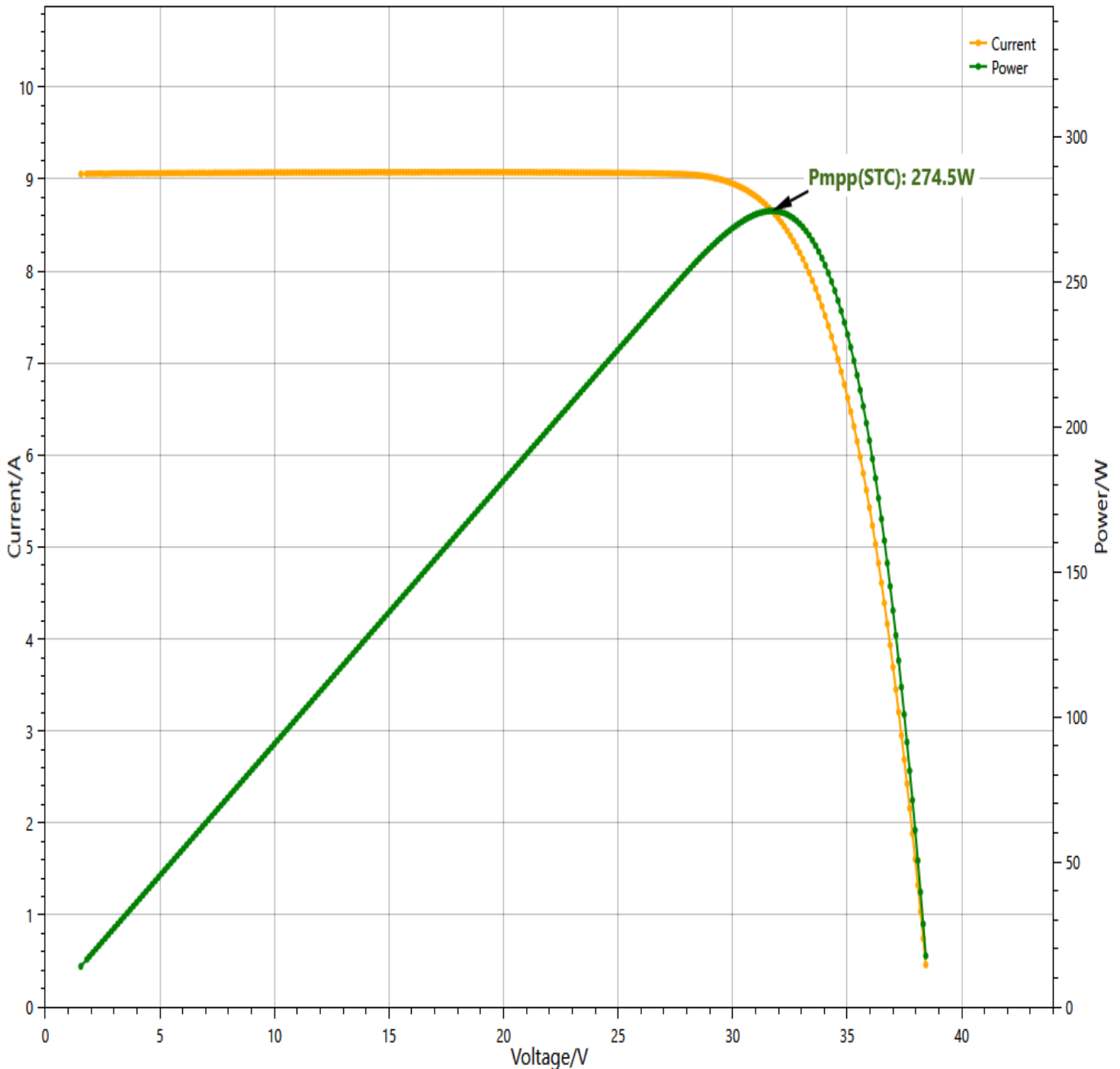
Measured [W/m2] 203.8 1001.7
Module Width/Height (Portrait) [mm]:992*1640

MBJ Unique ID: 600120200901092044

Module ID: 668821912100134

Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



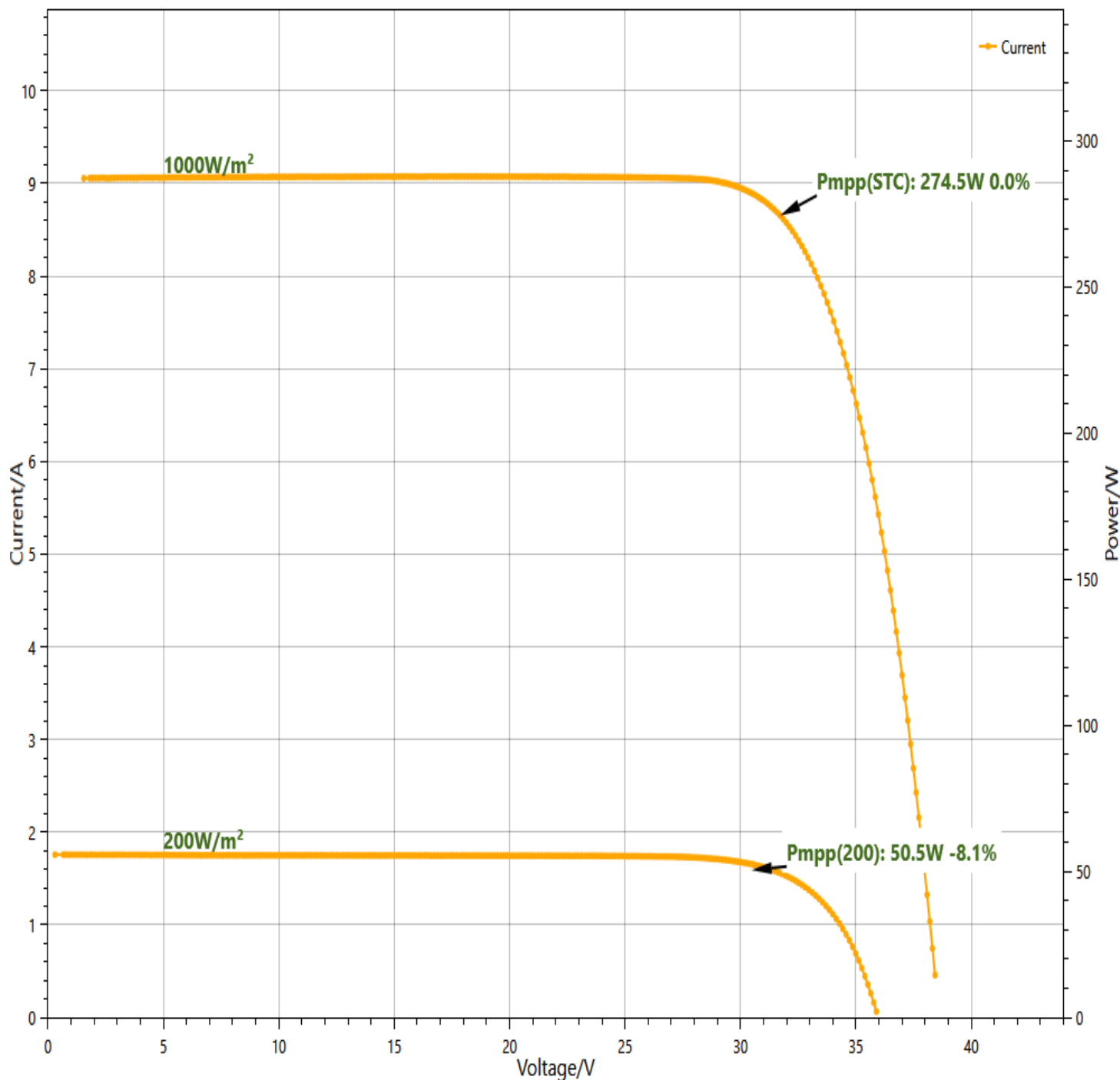
	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
IEC60891 STC	274.5	8.65	31.72	9.06	38.61	1000.0	78.5
Measured	278.6	8.68	32.08	9.13	38.67	1004.4	78.9
Tmod[°C]:24.5	Tref[°C]:24.8		Tfl[°C]:26.42		Tout[°C]:n/a		T[ms]:136.5
Type:Mono	alpha[%]:0.052		beta[%]:-0.290				
IEC aICF:0.060	IEC Rs[Ohm]:0.01		kappa[mOhm/K]:3.00				
Software:748p			Reference: ISE_Mono_Reference				
			TF: 1.000, FFCorr: -0.899%				

MBJ Unique ID: 600120200901092044

Module ID: 668821912100134

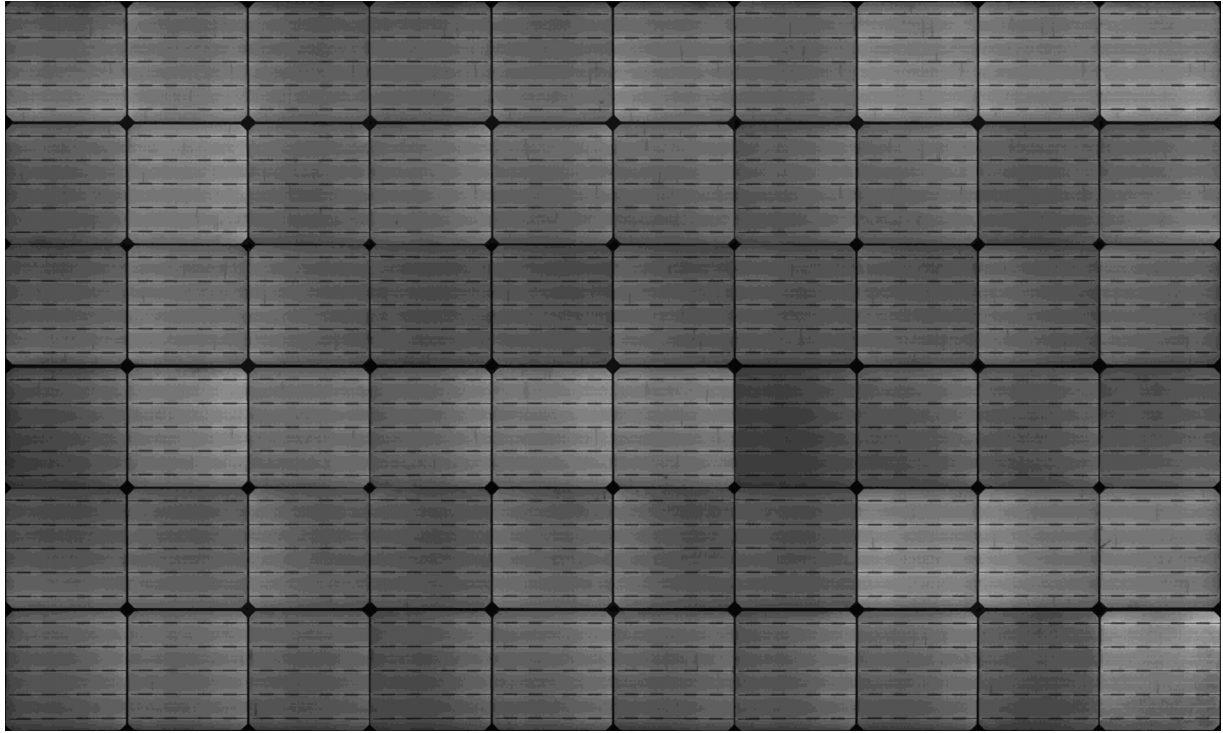
Type ID: WEAMERISOLAR / AS-6M30-310WBlack

I-V Curve



IEC60891 Irr [W/m2]	200	1000
IEC60891 Pmpp [W]	50.5	274.5
Module Eff [%]	15.5	16.9
Eff Delta [%]	-8.1	0.0
Measured [W/m2]	204.3	1004.4
Module Width/Height (Portrait) [mm]:992*1640		

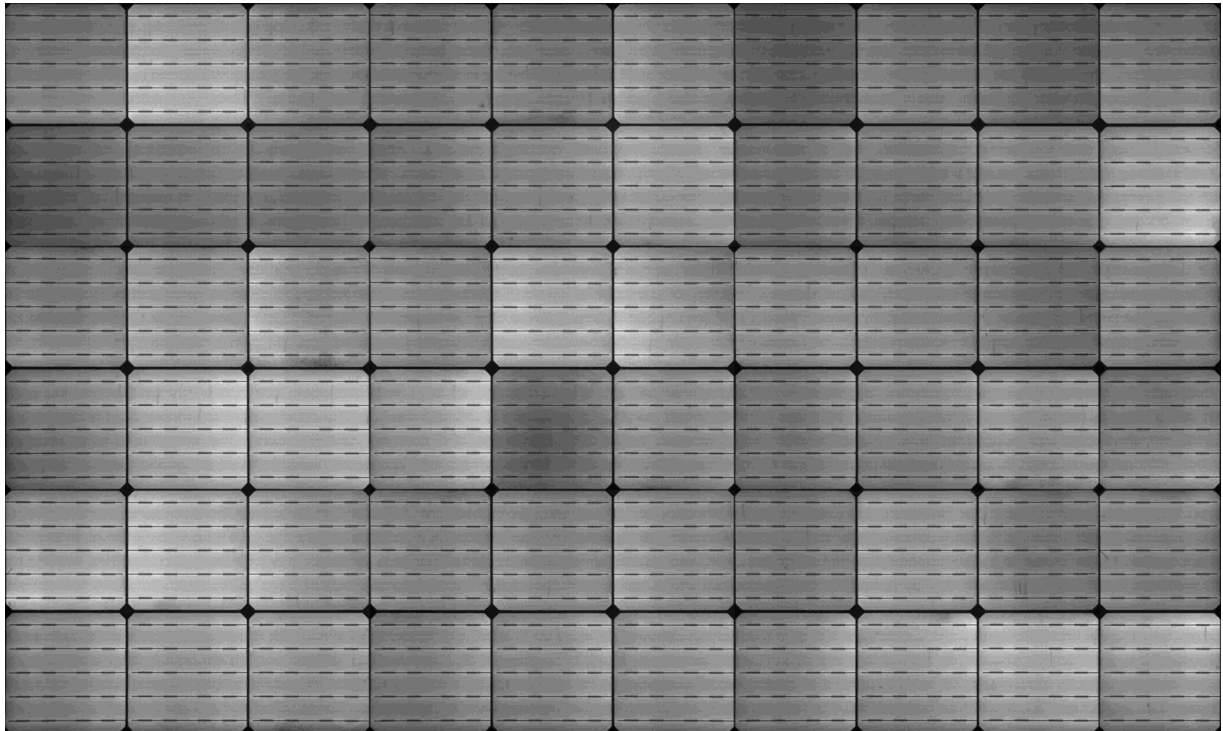
Electroluminescence for 600120200831160550



Current[A]: 12.020
Exposure Time [ms]: 3000

Voltage[V]: 43.420

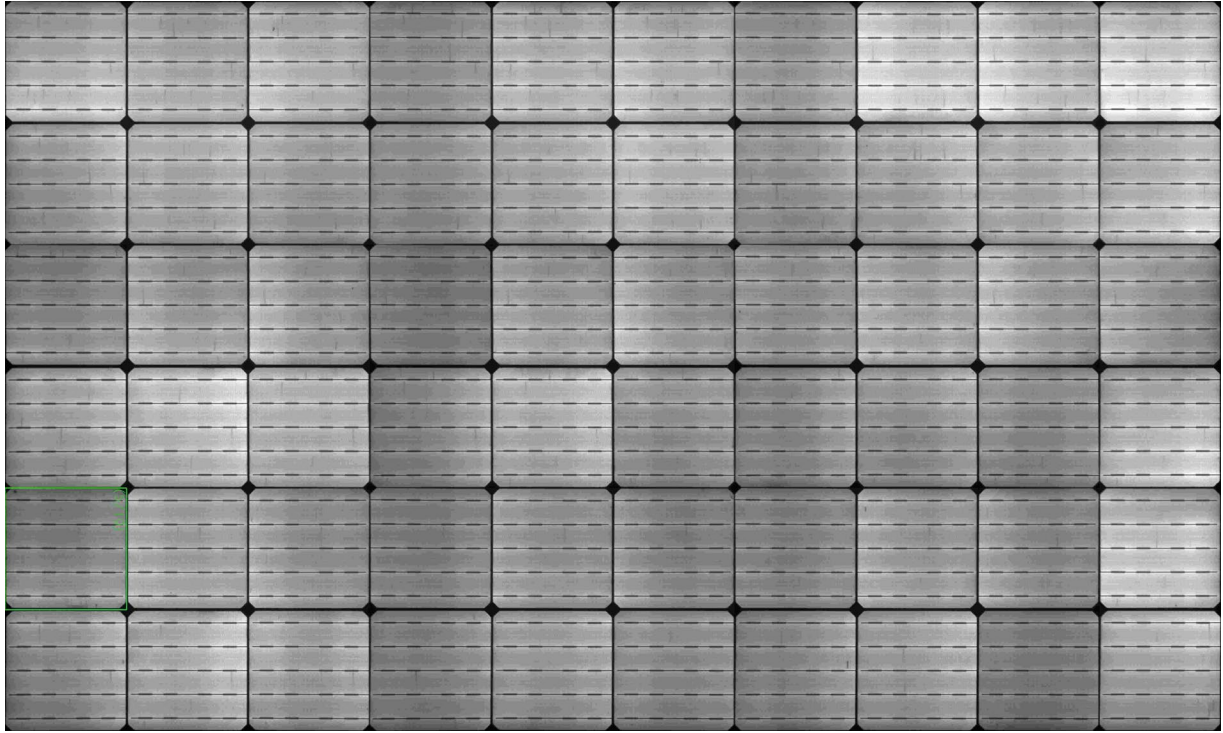
Electroluminescence for 600120200901084955



Current[A]: 12.020
Exposure Time [ms]: 3500

Voltage[V]: 43.420

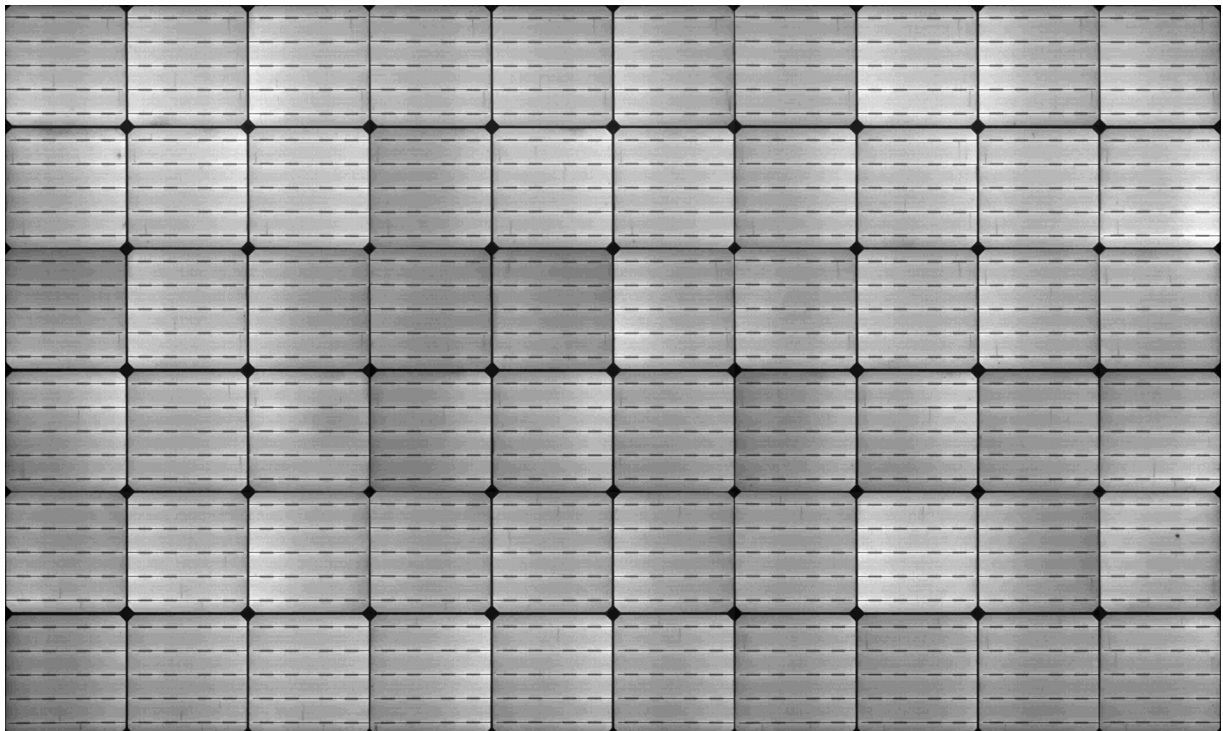
Electroluminescence for 600120200901095013



Current[A]: 12.020
Exposure Time [ms]: 3500

Voltage[V]: 43.420

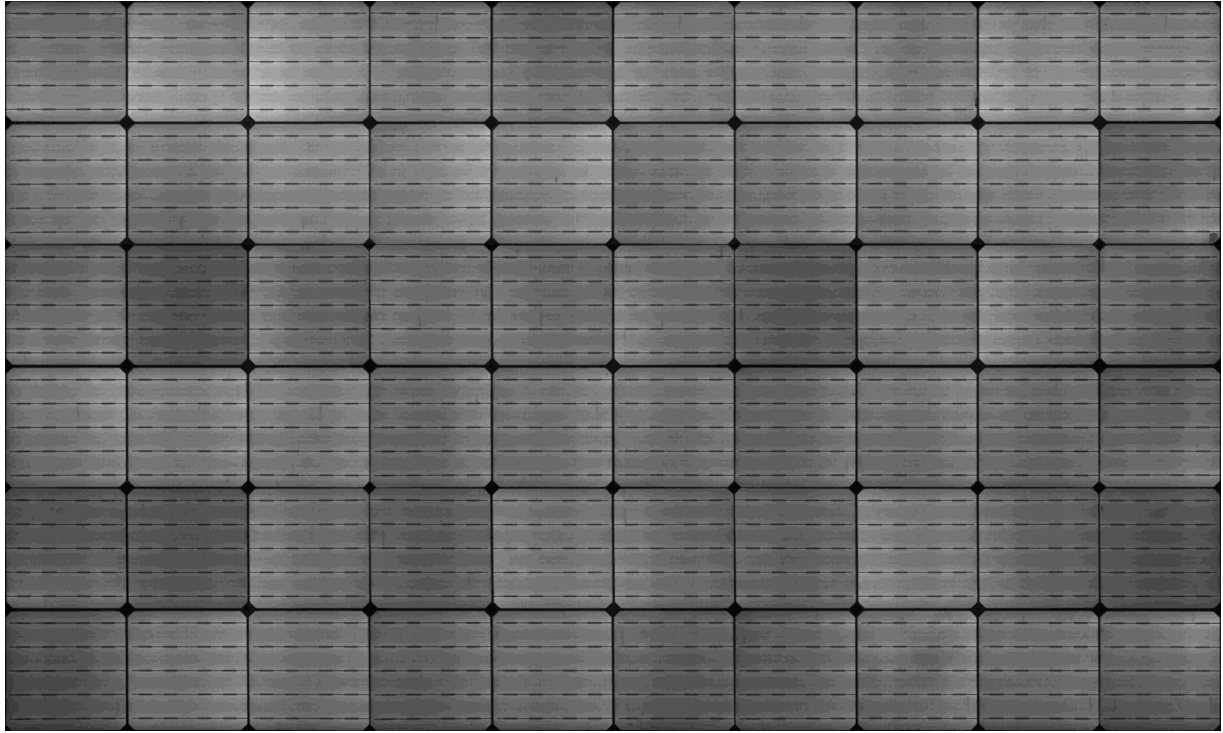
Electroluminescence for 600120200901093551



Current[A]: 12.020
Exposure Time [ms]: 3500

Voltage[V]: 43.750

Electroluminescence for 600120200831163308

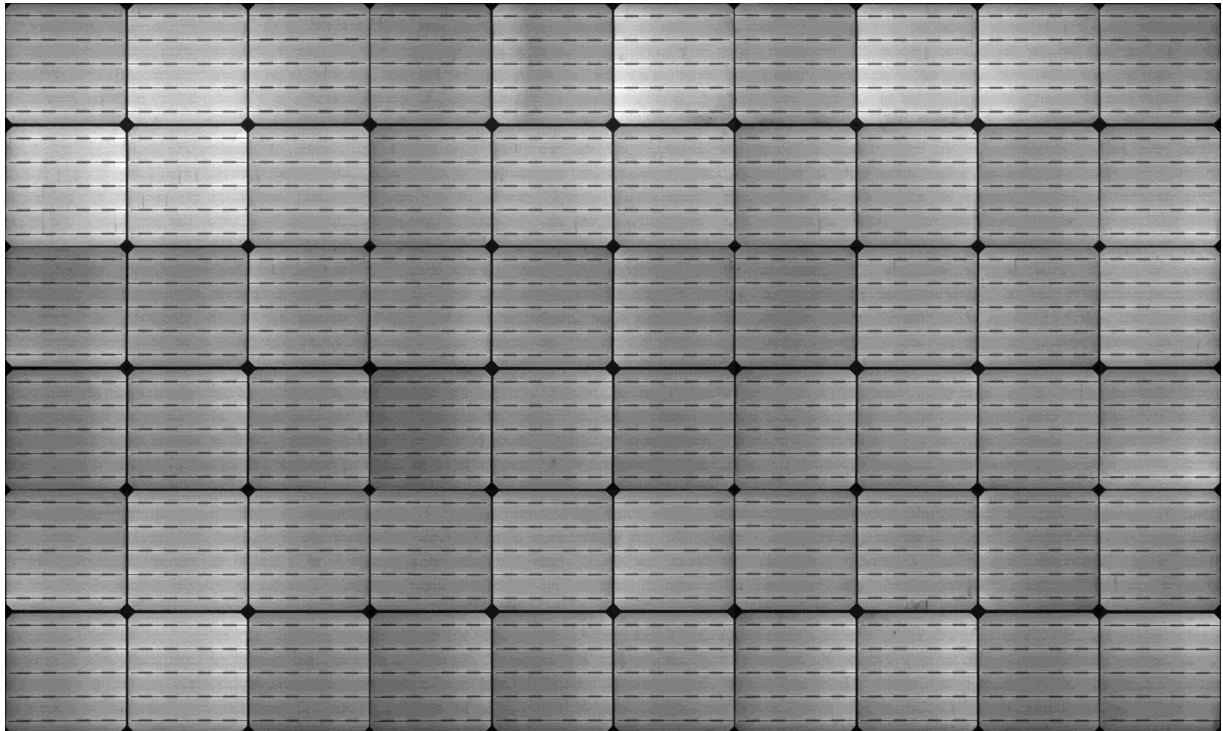


Current[A]: 12.020

Voltage[V]: 43.420

Exposure Time [ms]: 3000

Electroluminescence for 600120200901092044



Current[A]: 12.020

Voltage[V]: 43.750

Exposure Time [ms]: 3500

MBJ Unique ID	Module ID	Module Type/Description	Judgment
600120200831160550	668821912100101	WEAMERISOLAR AS-6M30-310WBlack	ClassD
600120200901084955	668821912100112	WEAMERISOLAR AS-6M30-310WBlack	ClassD
600120200901095013	668821912100118	WEAMERISOLAR AS-6M30-310WBlack	ClassD
600120200901093551	668821912100119	WEAMERISOLAR AS-6M30-310WBlack	ClassD
600120200831163308	668821912100123	WEAMERISOLAR AS-6M30-310WBlack	ClassD
600120200901092044	668821912100134	WEAMERISOLAR AS-6M30-310WBlack	ClassD

MBJ Unique ID	Judgment Comment	Module Comment
600120200831160550		Power is 271/310W. No signs of cracks or mismatch.
600120200901084955		Power is 273/310W. No signs of cracks or mismatch.
600120200901095013		Power is 274.9/310W. No mismatch.
600120200901093551		Power is 276/310W. No sign of cracks or mismatch.
600120200831163308		Power is 274/310W. No signs of cracks or mismatch.
600120200901092044		Power is 274/310W. No signs of mismatch or cracks.

MBJ Unique ID	Connection Check	Diode Test	HiPot Test	GND Bond Tests		
				Port 1	Port 2	Port 3
600120200831160550	Successfull	Successfull	n/a	n/a	n/a	n/a
600120200901084955	Successfull	Successfull	n/a	n/a	n/a	n/a
600120200901095013	Successfull	Successfull	n/a	n/a	n/a	n/a
600120200901093551	Successfull	Successfull	n/a	n/a	n/a	n/a
600120200831163308	Successfull	Successfull	n/a	n/a	n/a	n/a
600120200901092044	Successfull	Successfull	n/a	n/a	n/a	n/a

MBJ Unique ID	Pmpp[W]	Impp[A]	Umpp[V]	Isc[A]	Uoc[V]	Irr[W/m2]	FF[%]
600120200831160550	271.8	8.62	31.53	9.01	38.41	1000.0	78.5
600120200901084955	273.0	8.64	31.62	9.03	38.51	1000.0	78.5
600120200901095013	274.9	8.66	31.76	9.05	38.64	1000.0	78.6
600120200901093551	276.3	8.68	31.85	9.07	38.72	1000.0	78.6
600120200831163308	274.4	8.66	31.69	9.05	38.55	1000.0	78.6
600120200901092044	274.5	8.65	31.72	9.06	38.61	1000.0	78.5

MBJ Unique ID	Red	Yellow	Green	Blue	White
600120200831160550	0	0	0	0	60
600120200901084955	0	0	0	0	60
600120200901095013	0	0	1	0	59
600120200901093551	0	0	0	0	60
600120200831163308	0	0	0	0	60
600120200901092044	0	0	0	0	60