

SOLARTESTER TEST REPORT



Project Details

Client	R&H Solartechnik Dresden GmbH	Test Date	woensdag 9 december 2020
Test Location	Kaiserslautern	Operator	Rogier Vugts
Address	Denisstraße 12-14 67663 Kaiserslautern Germany		

Module Details

Module Brand	Canadian Solar	Number of modules tested	60
Module Type	CS6P-260P	Number of Modules in project	
Nominal power STC (nameplate)	260	Percentage of batch/Container	
Number of cells per module	60		

Calibration module C52908191230110389232362

Average power at STC

227,42 Watt
87,5% of nom
↓ -12,53% deviation

Lowest STC power

220,04 Watt
84,6% of nom
↓ -15,37% deviation

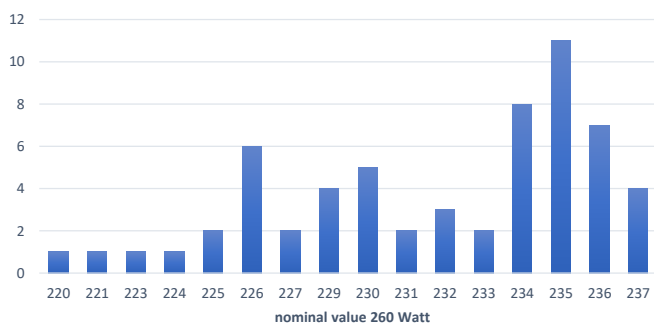
Highest STC power

236,66 Watt
91,0% of nom
↓ -8,98% deviation

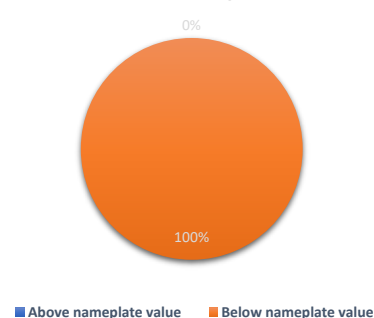
Module classification

76,67% Class A
0,00% Class B
0,00% Class C
0,00% Class D

Power measurement distribution



MPP versus Nameplate value



Conclusion

Power Measurement

The test shows average module power is 227,42% lower than nameplate value. This needs to be matched against the expected normal degradation of the modules. The data sheet does not mention details about the normal degradation.

Electroluminescence imaging

46 out of 60 modules have been classified as Class A. Modules classified as Class C contain severe damage marked red as Very critical. Module 11606320400565 failed connection, so no EL image and power measurement could be performed.

Detailed test results Electroluminescence imaging

Evaluation protocol:		Standard MBJ / TÜV version 3.4 - www.solartester.nl/downloads
Cell classification		# cells found percentage
Unmarked	No abnormalities	3454 97,57%
EL green	Uncritical cracks; do not lead directly to a degradation of the module. Other cracks and cell breaks are acceptable if they are not able to disconnect cell areas larger than 1 %.	51 1,44%
EL yellow	Critical: All cell areas that can potentially disconnect cell areas larger 1 % and smaller 20 % from power supply or which already do so.	0 0,00%
EL red	Very critical: Cell breaks that can potentially disconnect more than 20% of the cell area from the power supply are classified in the 'very critical' category and marked red. This category includes above all comminuted or fan-like breaks. Red cells lead directly to the classification of a PV module in the class C	0 0,00%
EL blue	Other EL abnormalities (shunts, dark cells, printing failures, edge contamination, ...). This category includes all defects which have occurred in the module manufacturing process and which have no negative impact on performance within the lifetime of the photovoltaic module. Such defects are normally uncritical and marked blue, since the power loss of the cell is already entered in the performance specified by the manufacturer. Consequential damages are not expected.	11 0,31%

Module Classification

		# of modules percentage
A	less than 10% green marked cells, no yellow or red	46 76,67%
B	less than 20% green marked cells, less than 10% yellow, no red, total # marked cells less than 20%	0 0,00%
C	more than 20% green marked, more than 10% yellow marked, less than 10% red marked, total # marked cells less than 30%	0 0,00%
D	more than 10% red marked, total # marked cells more than 30%	0 0,00%

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Flash / EL Data summary

ModuleID	ParameterSetName	Judgement	MPP@STC	ELRed	ELYellow	ELGreen	ELBlue	CommentJudgment
11606320400440	Canadian Solar / CS6P-260P	CLASSA	234,01	0	0	1	0	
11606320400574	Canadian Solar / CS6P-260P	CLASSA	229,18	0	0	0	0	
11606320400639	Canadian Solar / CS6P-260P	CLASSA	233,12	0	0	1	0	
11606320400557	Canadian Solar / CS6P-260P	CLASSA	229,31	0	0	1	0	
11606320400412	Canadian Solar / CS6P-260P	CLASSB	226,77	0	0	0	0	
11606320400457	Canadian Solar / CS6P-260P	CLASSA	228,34	0	0	1	0	
11606320400699	Canadian Solar / CS6P-260P	CLASSB	225,14	0	0	0	0	
11606320400324	Canadian Solar / CS6P-260P	CLASSA	223,96	0	0	0	0	
11606320400830	Canadian Solar / CS6P-260P	CLASSA	229,44	0	0	0	0	
11606320400888	Canadian Solar / CS6P-260P	CLASSA	229,61	0	0	1	0	
11606320400750	Canadian Solar / CS6P-260P	CLASSA	225,89	0	0	0	0	
11606320400881	Canadian Solar / CS6P-260P	CLASSA	224,47	0	0	1	0	
11606320400442	Canadian Solar / CS6P-260P	CLASSA	231,51	0	0	0	0	
11606320400126	Canadian Solar / CS6P-260P	CLASSA	228,17	0	0	0	1	
11606320400347	Canadian Solar / CS6P-260P	CLASSA	225,12	0	0	0	0	
11606320400849	Canadian Solar / CS6P-260P	CLASSA	226,26	0	0	1	0	
11606320400552	Canadian Solar / CS6P-260P	CLASSA	222,92	0	0	0	0	
11606320400529	Canadian Solar / CS6P-260P	CLASSA	225,74	0	0	0	0	
11606320400833	Canadian Solar / CS6P-260P	CLASSA	232,4	0	0	0	0	
11606320400437	Canadian Solar / CS6P-260P	CLASSA	225,34	0	0	0	0	
11606320400746	Canadian Solar / CS6P-260P	CLASSA	230,47	0	0	0	0	
11606320400555	Canadian Solar / CS6P-260P	CLASSB	222,82	0	0	1	0	
11606320400536	Canadian Solar / CS6P-260P	CLASSA	229,85	0	0	0	0	
11606320400810	Canadian Solar / CS6P-260P	CLASSA	231,61	0	0	0	0	
11606320400119	Canadian Solar / CS6P-260P	CLASSA	236,66	0	0	1	0	
11606320400349	Canadian Solar / CS6P-260P	CLASSA	236,44	0	0	0	0	
11606320400855	Canadian Solar / CS6P-260P	CLASSA	236,38	0	0	1	0	
11606320400898	Canadian Solar / CS6P-260P	CLASSB	233,58	0	0	6	0	
11606320400171	Canadian Solar / CS6P-260P	CLASSA	235,74	0	0	0	0	
11606320400120	Canadian Solar / CS6P-260P	CLASSA	220,04	0	0	4	0	
11606320400530	Canadian Solar / CS6P-260P	CLASSA	225,38	0	0	1	0	
11606320400515	Canadian Solar / CS6P-260P	CLASSA	228,24	0	0	2	0	
11606320400522	Canadian Solar / CS6P-260P	CLASSA	224,94	0	0	2	0	
11606320400407	Canadian Solar / CS6P-260P	CLASSA	228,08	0	0	2	0	
11606320400455	Canadian Solar / CS6P-260P	CLASSA	231,58	0	0	0	0	
11606320400380	Canadian Solar / CS6P-260P	CLASSB	230,72	0	0	6	0	
11606320400694	Canadian Solar / CS6P-260P	CLASSC	234,63	0	0	1	0	
11606320400045	Canadian Solar / CS6P-260P	CLASSB	229,50	0	0	4	0	
11606320400452	Canadian Solar / CS6P-260P	CLASSC	235,70	0	0	0	4	
11606320400747	Canadian Solar / CS6P-260P	CLASSB	233,37	0	0	2	0	
11606320400580	Canadian Solar / CS6P-260P	CLASSA	234,56	0	0	0	0	
11606320400778	Canadian Solar / CS6P-260P	CLASSC	235,88	0	0	2	0	
11606320400400	Canadian Solar / CS6P-260P	CLASSA	234,96	0	0	1	0	
11606320400384	Canadian Solar / CS6P-260P	CLASSB	233,65	0	0	0	0	
11606320400514	Canadian Solar / CS6P-260P	CLASSA	233,27	0	0	0	0	
11606320400328	Canadian Solar / CS6P-260P	CLASSA	234,6	0	0	2	0	
11606320400452	Canadian Solar / CS6P-260P	CLASSA	235,7	0	0	0	0	
11606320400571	Canadian Solar / CS6P-260P	CLASSA	235,09	0	0	0	1	
11606320400567	Canadian Solar / CS6P-260P	CLASSA	234,26	0	0	0	0	
11606320400433	Canadian Solar / CS6P-260P	CLASSA	234,92	0	0	0	3	
11606320400494	Canadian Solar / CS6P-260P	CLASSA	235,06	0	0	0	0	
11606320400379	Canadian Solar / CS6P-260P	CLASSA	233,73	0	0	0	0	
11606320400448	Canadian Solar / CS6P-260P	CLASSA	234,29	0	0	1	0	
11606320400384	Canadian Solar / CS6P-260P	CLASSA	233,65	0	0	4	0	
11606320400499	Canadian Solar / CS6P-260P	CLASSA	234,4	0	0	1	2	
11606320400495	Canadian Solar / CS6P-260P	CLASSA	234,28	0	0	0	0	
11606320400376	Canadian Solar / CS6P-260P	CLASSA	233,54	0	0	0	0	
11606320400428	Canadian Solar / CS6P-260P	CLASSB	235,33	0	0	0	0	
11606320400565	Canadian Solar / CS6P-260P	CLASSC	0	0	0	0	0	
11606320400450	Canadian Solar / CS6P-260P	CLASSC	222,77	0	0	0	0	