



IEC 60068-2-68:1994
Dust and Sand Test Lc 2
Confirmation of test results



VDE Renewables File Ref.: ET-20231108-238

Applicant: Ningbo Osda Solar Co., Ltd.
No.136-1, Haichuan Road, Jiangbei Area,
Ningbo, Zhejiang

Product: Crystalline silicon Photovoltaic (PV)-Modules

Type:	A)	ODAXXX-36V-MHD	B)	ODAXXX-30V-MH
	C)	ODAXXX-30V-MHD	D)	ODAXXX-36V-MH
	E)	ODAXXX-39V-MHD	F)	ODAXXX-39V-MH
	G)	ODAXXX-33V-MHD	H)	ODAXXX-33V-MH
	I)	ODAXXX-28V-MHD	J)	ODAXXX-28V-MH
	K)	ODAXXX-27V-MHD	L)	ODAXXX-27V-MH
	M)	ODAXXX-25V-MHD	N)	ODAXXX-25V-MH

XXX in the type replaces the power in watt and can be any number between:

525 - 585 for A)	460 - 635 for B)	440 - 640 for C)
550 - 580 for D)	585 - 625 for E)	590 - 620 for F)
485 - 715 for G)	500 - 710 for H)	530 - 590 for I),J)
395 - 400 for K)	410 - 440 for L)	490 - 540 for M),N)

Manufacturer: Ningbo Osda Solar Co., Ltd.

Standard: IEC 60068-2-68, Dust and Sand test Lc 2

Test sequence: Based on IEC 61701:2011

Test conditions

Dust concentration: 4.8 - 5.3 g/m³

Wind velocity: 18.3 - 20.7 m/s

Particle size: Variant 3, <590 µm

Dust composition: Quartz, 95% SiO₂

Testing time: Front side: 4 h, Rear side: 4 h

Pass criteria:

Power degradation: < 5%

Dry Insulation: > 40 MΩm²

Wet insulation: > 40 MΩm²

Ground continuity: < 0.1Ω

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Summary of test results:

Maximum power degradation:	allowed	max. 5 %
	measured	max. 1.95 %

The measured degradation is below the allowed degradation.

Dry insulation resistance:	required	min. 15.49 MΩ
	measured	>15000 MΩ

The measured dry insulation resistance is above the limit.

Wet insulation resistance:	required	min. 20.2 MΩ
	measured	>15000 MΩ

The measured wet insulation resistance is above the limit.

Ground continuity test:	required	max. 0.1Ω
	measured	max. <0.001Ω

The measured ground continuity test is above the limit.

The complete test results and the relevant bill of materials are given in Test Report No.: TRPVM- ET-20231108-238.

VDE Renewables GmbH

Devin Ho

Dean Wen

Shanghai, 2023-11-13

