

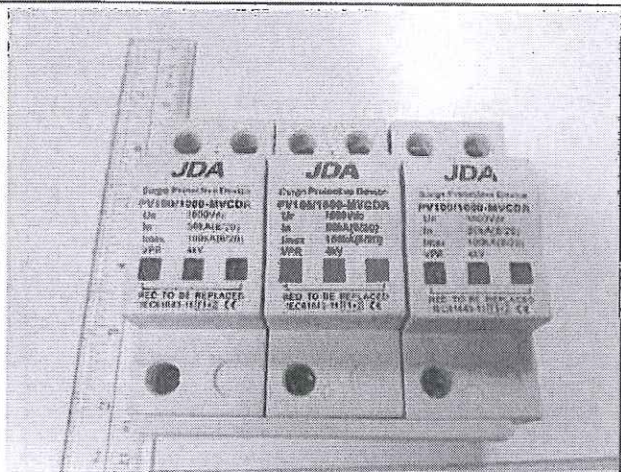


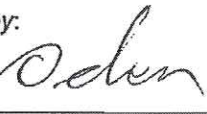
TÜVRheinland®

Precisely Right.

16062227 001
JD Auspire Co., Ltd.

Prüfbericht-Nr.: Test Report No.:	16062227 001	Auftrags-Nr.: Order No.:	174024336	Seite 1 von 9 Page 1 of 9
Kunden-Referenz-Nr.: Client Reference No.:	N/A	Auftragsdatum: Order date:	2014.07.16	
Auftraggeber: Client:	JD Auspice Co., Ltd. Address: 3F., No. 288, Sec. 2 Zhounghua Rd., Xinzhuang Dist., New Taipei City 242, Taiwan, R.O.C.			
Prüfgegenstand: Test item:	DC Surge Protective Device			
Bezeichnung / Typ-Nr.: Identification / Type No.:	PV100/1000-MVCDR			
Auftrags-Inhalt: Order content:	Test report			
Prüfgrundlage: Test specification:	IEC 61643-11: 2011, 12,5kA, 10/350 waveshape only			
Wareneingangsdatum: Date of receipt:	2014.07.16			
Prüfmuster-Nr.: Test sample No.:	174024336			
Prüfzeitraum: Testing period:	2014.08.05 – 2014.08.03			
Ort der Prüfung: Place of testing:	Refer to page 2			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Guangdong) Ltd.			
Prüfergebnis*: Test result*:	Pass			



geprüft von / tested by:			kontrolliert von / reviewed by:		
2014.08.06	Evan Wu/ PM		2014.08.06	Andy Chen / TC	
Datum Date	Name / Stellung Name / Position	Unterschrift Signature	Datum Date	Name / Stellung Name / Position	Unterschrift Signature

Sonstiges / Other:
According to client's requirement, only 12,5 kA, 10/350 waveshape was applied between polarity "+" and "-" on one set of sample for one time.

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

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

List of Attachments (including a total number of pages in each attachment): None

Summary of testing:

Tests performed (name of test and test clause):

According to client's requirement, only 12,5 kA, 10/350 waveshape was applied between polarity "+" and "-" on one set of sample for one time.

Testing location:

Lightning Protective Devices Testing Center of Shanghai Lightning Protection Center.

No.2030 Laifang Road, Songjiang District, Shanghai, P.R.China, 201615

Summary of compliance with National Differences

List of countries addressed:

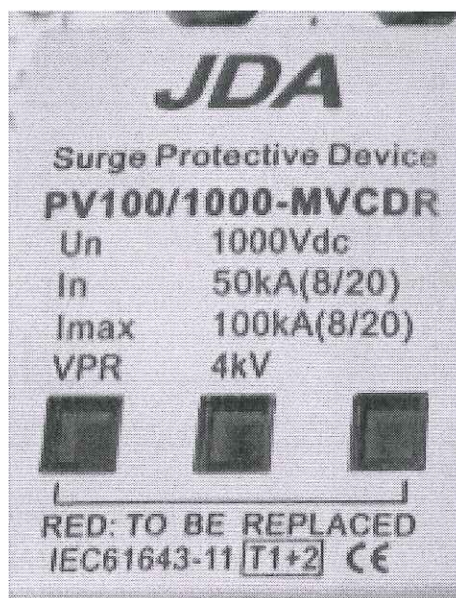
N/A

☐ The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)



Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Test item particulars :	
Number of ports	One port
SPD design topology	Voltage switching
SPD classified for test class	I
Location	Indoor
Accessibility	Inaccessible
Mounting method	Fixed
SPD Disconnecter	Internal
Protection functions	Thermal
Overcurrent protection	Not specified
Degree of protection (IP code)	IP 20 after installation
Temperature range	Normal
Required SPD-disconnectors	--
SPD failure behaviour:	--
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing :	
Date of receipt of test item	2014-07-16
Date (s) of performance of tests	2014-08-05
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a ☒ comma / ☐ point is used as the decimal separator.	
Manufacturer's Declaration per Sub-clause 4.2.5 of IEC60060-2:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....	☐ Yes ☒ Not applicable
When differences exist; they shall be identified in the General Product Information section.	



Name and address of factory (ies) :

JD Auspice Co., Ltd.

Address: 3F., No. 288, Sec. 2 Zhounghua Rd., Xinzhuang Dist., New Taipei City 242, Taiwan, R.O.C.

General product information:

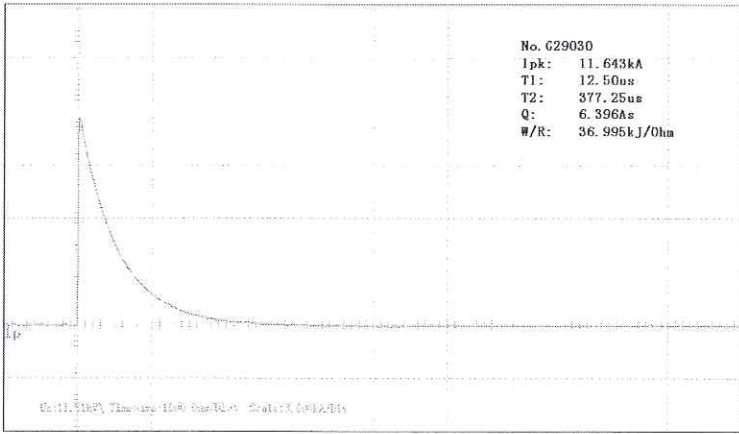
The product is DC surge protective device for PV system, parameters refer to page 4.

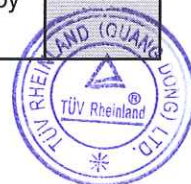


SPDs according test class I: Calculation of charge Q and specific energy W/R
 applied during additional duty test acc. to 8.3.4.4

I (kA)	Q (As) within 5 ms	W/R (kJ/Ω)
0,1* I _{imp} = _____	---	---
0,25* I _{imp} = _____	---	---
0,5* I _{imp} = _____	---	---
0,75* I _{imp} = _____	---	---
1,0* I _{imp} = <u>11,643</u>	6,396	39



IEC 61643-11 - TEST SEQUENCE 1			
Clause	Requirement - Test	Result - Remark	Verdict
8.3.4.4	Additional duty test for test class I		P
	This test is carried out with current impulses in steps up to I_{imp} passing through the SPD. SPD energized at U_C by a voltage source having a nominal current capability of 5A during the application of impulses.	$U_C = \underline{DC\ 1060\ V}$	P
	Current impulses of positive polarity shall be initiated in the corresponding positive crest value of the power frequency voltage source to the energized test sample as follows: One current impulse at $1,0\ I_{imp}$ 	<u>11,643 kA</u>	P
	After each impulse cool down to ambient temperature	Only one impulse	N/A
8.3.4.6	Pass criteria		
A	After the application of each impulse and after interruption of each follow current (if any) the SPD shall remain energized without interruption for at least 1 min to check for re-ignition. After that period the SPD either remains applied or is reapplied within less than 30s to U_C for another 15 min to check for stability. For that purpose the short-circuit capability of the power source shall also be 5A.		N/A
B	Voltage and current records and visual inspection show no sign of puncture or flashover.		P
C	No mechanical damage		P
D	Determination of the measured limiting voltage:	Not required by client	
E	No excessive leakage currents shall occur after the test	Not required by client	



IEC 61643-11 - TEST SEQUENCE 1			
Clause	Requirement - Test	Result - Remark	Verdict
F	External disconnectors shall not operate during the test and shall be in working order after the test.		P
G	Internal disconnectors shall not operate during the test and shall be in working order after the test.		P
M	There shall be no explosion or other hazard to either personnel or the facility.		



Table 21 – Tolerances for proportional surge currents

Test classification	Proportional currents and tolerances
Test class I	$I_{imp(1)} = I_{imp(2)} = I_{imp(N)} = I_{Total(I_{imp})} / N \quad 10 \%$ $Q_{(1)} = Q_{(2)} = Q_{(N)} = Q_{Total} / N \quad -10/+20 \%$ $W/R_{(1)} = W/R_{(2)} = W/R_{(N)} = W/R_{Total} / N^2 \quad -10/+45 \%$
Test class II	$I_{8/20(1)} = I_{8/20(2)} = I_{8/20(N)} = I_{Total(8/20)} / N \quad \pm 10\%$



