



Test Report issued under the responsibility of:



TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number..... : WL-ITAV-1-2311502-A1
Date of issue : 2024-10-21
Total number of pages : 11

Name of Testing Laboratory preparing the Report : Wendell Electrical Testing Lab
3F., No. 6, Aly. 6, Lane. 235, Baoqiao Rd., Xindian District, New Taipei City 231028, (Taiwan), Chinese Taipei

Applicant's name : APACER TECHNOLOGY INC
Address : 1F 32 Zhongcheng Rd Tucheng District New Taipei, 236 TAIWAN

Test specification:
Standard : IEC 62368-1:2018
Test procedure..... : CB Scheme
Non-standard test method..... : N/A

TRF template used : IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No..... : IEC62368_1E
Test Report Form(s) Originator.... : UL(US)
Master TRF : Dated 2022-04-14



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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:
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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description	PCIe M.2 2280 SSD	
Trade Mark(s)	Apacer	
Manufacturer	Same as applicant	
Model/Type reference	PX25X-M280 (X=A-Z, 0-9)	
Ratings	3.3 Vdc (Optional)	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/> CB Testing Laboratory:	Wendell Electrical Testing Lab.	
Testing location/ address	3F., No. 6, Aly. 6, Lane. 235, Baoqiao Rd., Xindian District, New Taipei City 231028, (Taiwan), Chinese Taipei	
Tested by (name, function, signature)	Ken Wu (Project Handler)	
Approved by (name, function, signature) .. :	Albert Wang (Reviewer)	
<input type="checkbox"/> Testing procedure: CTF Stage 1:		
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) .. :		
<input type="checkbox"/> Testing procedure: CTF Stage 2:		
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
<input type="checkbox"/> Testing procedure: CTF Stage 3:		
<input type="checkbox"/> Testing procedure: CTF Stage 4:		
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):	
- Attachment 1 (2 pages) – Photos	
Summary of testing:	
N/A	
Tests performed (name of test and test clause):	Testing location:
- N/A	N/A
Summary of compliance with National Differences (List of countries addressed):	
EU group, United Kingdom (per customer's request shown separately), Canada and United States, Saudi Arabia, Japan.	
<input checked="" type="checkbox"/> The product fulfils the requirements of EN IEC 62368-1:2020+A11:2020, BS EN IEC 62368-1:2020+A11:2020	
<input checked="" type="checkbox"/> The product fulfils the requirements of CSA/UL 62368-1:2019	
<input checked="" type="checkbox"/> The product fulfils the requirements of SASO-IEC 62368-1:2020	
<input checked="" type="checkbox"/> The product fulfils the requirements of J62368-1(2023)	
Use of uncertainty of measurement for decisions on conformity (decision rule) :	
<input checked="" type="checkbox"/> No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").	
<input type="checkbox"/> Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)	
Information on uncertainty of measurement:	
<p>The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.</p> <p>IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.</p> <p>Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.</p>	

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.

(Representative)



Test item particulars:	
Product group	<input type="checkbox"/> end product <input checked="" type="checkbox"/> built-in component
Classification of use by	<input type="checkbox"/> Ordinary person <input type="checkbox"/> Children likely present <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person
Supply connection	<input type="checkbox"/> AC mains <input type="checkbox"/> DC mains <input checked="" type="checkbox"/> not mains connected: <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply tolerance	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + %/ - % <input checked="" type="checkbox"/> None
Supply connection – type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: not directly connect to the mains
Considered current rating of protective device	<input type="checkbox"/> A; Location: <input type="checkbox"/> building <input type="checkbox"/> equipment <input checked="" type="checkbox"/> N/A
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> direct plug-in <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> wall/ceiling-mounted <input type="checkbox"/> SRME/rack-mounted <input type="checkbox"/> other:
Overvoltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: not directly connect to the mains
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified <input type="checkbox"/>
Special installation location	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> restricted access area <input type="checkbox"/> outdoor location <input type="checkbox"/>
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified T_{ma}	85 °C <input type="checkbox"/> Outdoor: minimum °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP___
Power systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - V _{L-L} <input checked="" type="checkbox"/> not AC mains
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> m
Mass of equipment (kg)	Max. 8.6 g

Possible test case verdicts:	
- test case does not apply to the test object	
- test object does meet the requirement.....	
- test object does not meet the requirement.....	
Testing:	
Date of receipt of test item	
Date (s) of performance of tests	
General remarks:	
"(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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IECCE 02:	
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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	
1F 32 Zhongcheng Rd Tucheng District New Taipei, 236 TAIWAN	
General product information and other remarks:	
Product Description –	
<ul style="list-style-type: none"> The equipment under test (EUT), models shown as cover page is a PCIe M.2 2280 SSD for building-in as a component/assembly use in audio/video, information and communication technology equipment. The equipment is incorporated with following critical parts: 1) ES1 board. Based upon the product specification provided by the manufacturer, this unit is intended to be supplied by an approved ITE product whose output meets ES1 and PS3. 	
Model Differences –	
<ul style="list-style-type: none"> All models are identical except for model designation for marketing purpose and no safety consideration. 	
Additional application considerations –	
<ul style="list-style-type: none"> The accessibility for ordinary person shall be evaluated in the end product. The need for suitable Electrical enclosure (for ES safeguard), fire enclosure (for PS safeguard), mechanical enclosure (for MS safeguard), and safeguard for thermal burn injury (for TS safeguard) is to be evaluated and provided in the end-use equipment. Heating and thermal related test should be conducted in the end application if necessary. 	

This test report shall be read in conjunction with the original report, number:

- WL-ITAV-1-23I1502-A0 issue date 2023-10-30, With CB Certificate No. (DK-123300-UL) issued on 2023-10-31.

This report has been amended (technical modification), due to:

- Add alternate main board, definition main board type B. (Original definition main board type A)
- Change Manufacturer's specified Tma from 70°C to 85°C.
- Update Summary of compliance with National Differences.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES1: All circuits	Assume access by Ordinary	Not required	Not required	Not required
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS3: All circuits	PCB and other combustible materials	See 6.3	See 6.4.5, 6.4.6	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
To be evaluated in the end product.	To be evaluated in the end product.	--	--	--
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
To be evaluated in the end product.	To be evaluated in the end product.	--	--	--
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
"B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM

Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.

Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings

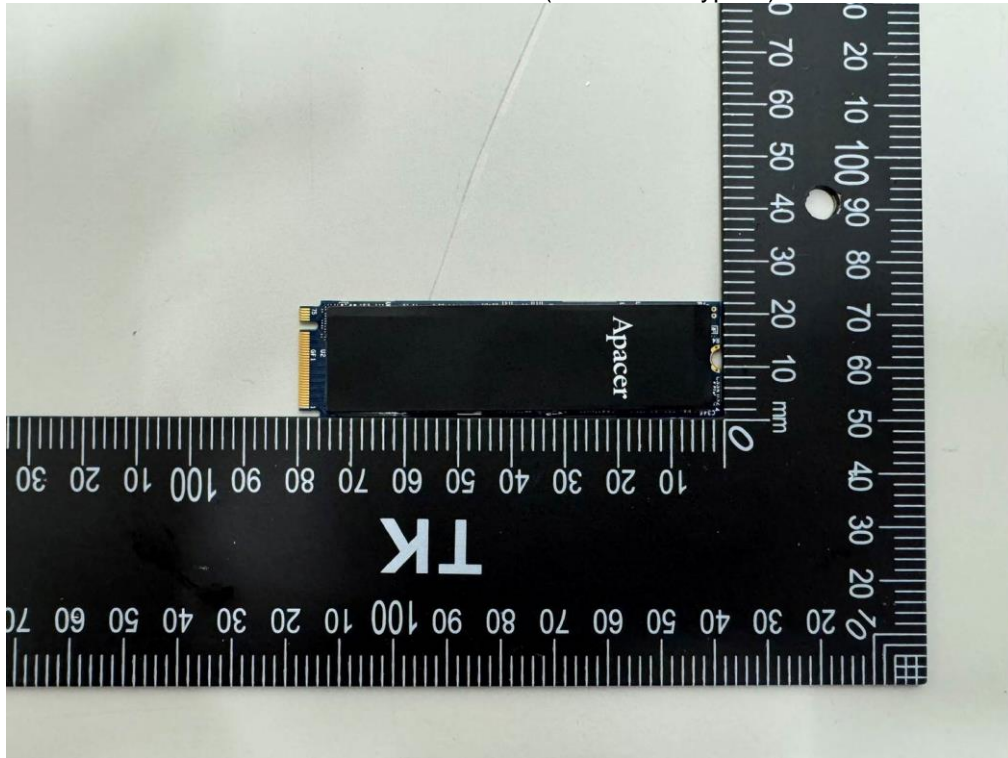
See OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS TABLE for details

ES PS MS TS RS

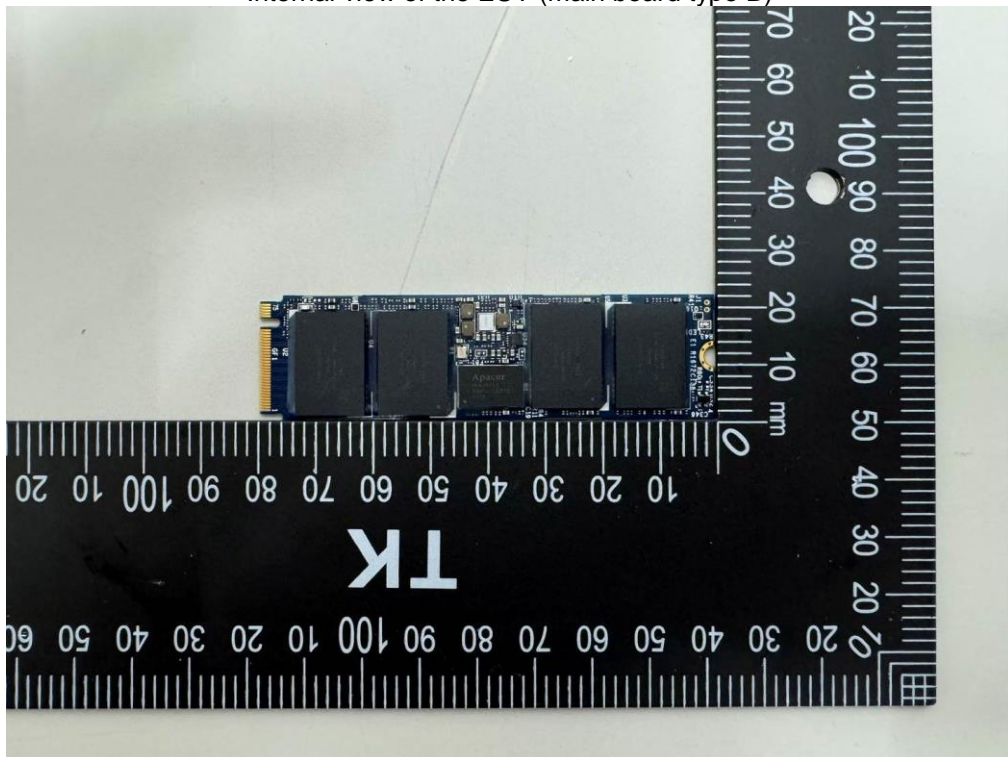
IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
4.1.2	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
PCB	Interchangeable	Interchangeable	V-1 or better, min. 105 °C	UL 796	UL (License available upon request)
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

External view of the EUT (main board type B)



Internal view of the EUT (main board type B)



External view of the EUT (main board type B)

