

Client Name: GUANGDONG LESSO BANHAO NEW ENERGY TECHNOLOGY GROUP CO., LTD  
 Client Address: THE 1ST AND 2ND FLOORS OF THE WORKSHOP IN ZONE 2, NO. 58, LONGZHOU WEST ROAD, LONGJIANG TOWN, SHUNDE DISTRICT, FOSHAN CITY, GUANGDONG PROVINCE, P.R.CHINA

Sample Name: PV modules  
 Tested Basic Model No.: 500D(HPM)66(182)

The above sample(s) and information were provided by the client.

SGS Job No.: SZP23-010200  
 Sample Receiving Date: Jul 17, 2023  
 Verification Period: Jul 17, 2023 ~ Aug 11, 2023  
 Verification Requested: With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.  
 Verification Method(s): Please refer to next page(s).  
 Verification Result(s): Please refer to next page(s).

**Test Result Summary:**

Test Items	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

Signed for and on behalf of  
 SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Jenny Liao  
 Approved Signatory

scan to see the report



D6910536



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Photo of Submitted Sample



500D(HPM)66(182)

**Verification Method(s):**

1. With reference to IEC 62321-2:2021, disassembly and disjointment were performed for the submitted samples.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
  - (1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy.
  - (2) Wet chemical test method: With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, ISO 17075-1:2017, IEC 62321-6:2015 and IEC62321-8:2017 , analyzed by ICP-OES,UV-Vis and GC-MS.



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**Verification Part Description:**

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN23-0063313-0001.C001	Black plastic frame
SN2	A2	CAN23-0063313-0001.C002	Silvery metal frame
SN3	A3	CAN23-0063313-0001.C003	Black plastic shell
SN4	A4	CAN23-0063313-0001.C004	Black plastic (wire insulation)
SN5	A5	CAN23-0063313-0001.C005	Silvery adhesive plastic sheet with black printing
SN6	A6	CAN23-0063313-0001.C006	Silvery adhesive plastic sheet with black printing
SN7	A7	CAN23-0063313-0001.C007	White glue
SN8	A8	CAN23-0063313-0001.C008	Black body
SN9	A9	CAN23-0063313-0001.C009	Black plastic sheet
SN10	A10	CAN23-0063313-0001.C010	Grey rubber ring
SN11	A11	CAN23-0063313-0001.C011	Black plastic part
SN12	A12	CAN23-0063313-0001.C012	Black plastic part
SN13	A13	CAN23-0063313-0001.C013	Silvery metal part
SN14	A14	CAN23-0063313-0001.C014	Silvery metal pin
SN15	A15	CAN23-0063313-0001.C015	Silvery metal wire
SN16	A16	CAN23-0063313-0001.C016	Black plastic part
SN17	A17	CAN23-0063313-0001.C017	Black plastic part
SN18	A18	CAN23-0063313-0001.C018	Silvery metal part
SN19	A19	CAN23-0063313-0001.C019	Red rubber ring
SN20	A20	CAN23-0063313-0001.C020	Silvery metal part
SN21	A21	CAN23-0063313-0001.C021	Transparent glass sheet
SN22	A22	CAN23-0063313-0001.C022	Translucent plastic sheet with blue printing
SN23	A23	CAN23-0063313-0001.C023	White plastic sheet
SN24	A26	CAN23-0063313-0001.C026.C001	Silvery metal sheet
SN25	A27	CAN23-0063313-0001.C027.C002	Silvery metal wire(solder)



**Verification Result(s):**

In accordance with the result of material risk assessment, the following disjointed parts in the submitted sample have been verified. (Unless otherwise specified, the unit is mg/kg).

Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	OL▲
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	BL	BL	BL
PBBs	BL	---	BL	BL	BL	BL	BL	BL
PBDEs	BL	---	BL	BL	BL	BL	BL	BL
DBP	BL	---	BL	ND	ND	ND	ND	ND
BBP	BL	---	BL	ND	ND	ND	ND	ND
DEHP	BL	---	BL	ND	ND	ND	ND	ND
DIBP	BL	---	BL	ND	ND	ND	ND	ND
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A9	A10	A11	A12	A13	A14	A15	A16
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	ND	BL	BL	BL
PBBs	BL	BL	BL	BL	---	---	---	BL
PBDEs	BL	BL	BL	BL	---	---	---	BL
DBP	BL	ND	BL	BL	---	---	---	BL
BBP	BL	ND	BL	BL	---	---	---	BL
DEHP	BL	ND	BL	BL	---	---	---	BL
DIBP	BL	ND	BL	BL	---	---	---	BL
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A17	A18	A19	A20	A21	A22	A23	A26
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	BL	BL	BL
PBBs	BL	---	BL	---	BL	BL	BL	---
PBDEs	BL	---	BL	---	BL	BL	BL	---
DBP	BL	---	ND	---	---	BL	BL	---
BBP	BL	---	ND	---	---	BL	BL	---
DEHP	BL	---	ND	---	---	BL	BL	---
DIBP	BL	---	ND	---	---	BL	BL	---
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A27
Cd	BL
Pb	BL
Hg	BL
Cr(VI)▼	BL



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Test Item(s)	A27
PBBs	---
PBDEs	---
DBP	---
BBP	---
DEHP	---
DIBP	---
Conclusion	PASS



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**Notes:**

- (1) Interpretation of screening results by X-ray fluorescence spectrometry (XRF):  
 (a) Screening limits in mg/kg for regulated elements in various matrices according to IEC 62321-1:2013 Annex A as below table.

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	Not applicable	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

- (b) If the maximum allowed level restricts PBB/PBDE and Cr(VI) rather than Br and Cr, the exceptions are the XRF determinations of Br and Cr. If the quantitative results for the elements Br and/or are higher than the limit (for Br calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE), the sample is "inconclusive".  
 (c) Results are obtained by EDXRF for primary screening, LOD = Limit of Detection, BL = Below Limit, OL= Over Limit, IN (The symbol X marks the region)=Inconclusive, where further investigation is necessary, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs/PBDEs) are recommended to be performed.  
 (d) The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (2) Screening results of Phthalates (PHTH) are for primary screening, and further chemical testing by GC-MS (for DBP, BBP, DEHP and DIBP) are recommended to be performed if the concentration exceeds the below warning value (unit: mg/kg).

Test Items	CAS No.	Polymer/ Composite Materials
Dibutyl Phthalate (DBP)	84-74-2	$BL \leq 600 < X$
Benzylbutyl Phthalate (BBP)	85-68-7	$BL \leq 600 < X$
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	$BL \leq 600 < X$
Diisobutyl Phthalate (DIBP)	84-69-5	$BL \leq 600 < X$

- (3) Interpretation of results by chemical tests:  
 (a) mg/kg = 0.0001%, MDL=Method detection Limit, ND = Not Detected (<MDL), --- = Not Applicable.  
 (b) Unit and MDL in wet chemical test

Test Items	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBBs and PBDEs is 100 mg/kg,  
 MDL of Cr(VI) for polymer, composite and leather sample is 10 mg/kg.  
 MDL of Cr(VI) for metal sample is 0.10 µg/cm<sup>2</sup>.

- (c) ▼ =Metal sample  
 a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm<sup>2</sup>. The sample coating is considered to contain Cr(VI).  
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-Cr(VI) based coating  
 c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive-unavoidable coating variations may influence the determination



Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

- (4) Restricted substances and maximum concentration values tolerated by weight in homogeneous materials under RoHS Directive: Cd: 0.01%, Pb/Hg/Cr(VI)/PBBs/PBDEs/DEHP/DBP/BBP/DIBP: 0.1%. The limit is quoted from RoHS Directive (EU) 2015/863.
- (5) IEC 62321 series is equivalent to EN 62321 series.

(6) ▲=According to the declaration from the client, Lead (Pb) in No.A8 is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 7(c)-I]: Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ( $w=0$ ) stated in ILAC-G8:09/2019.



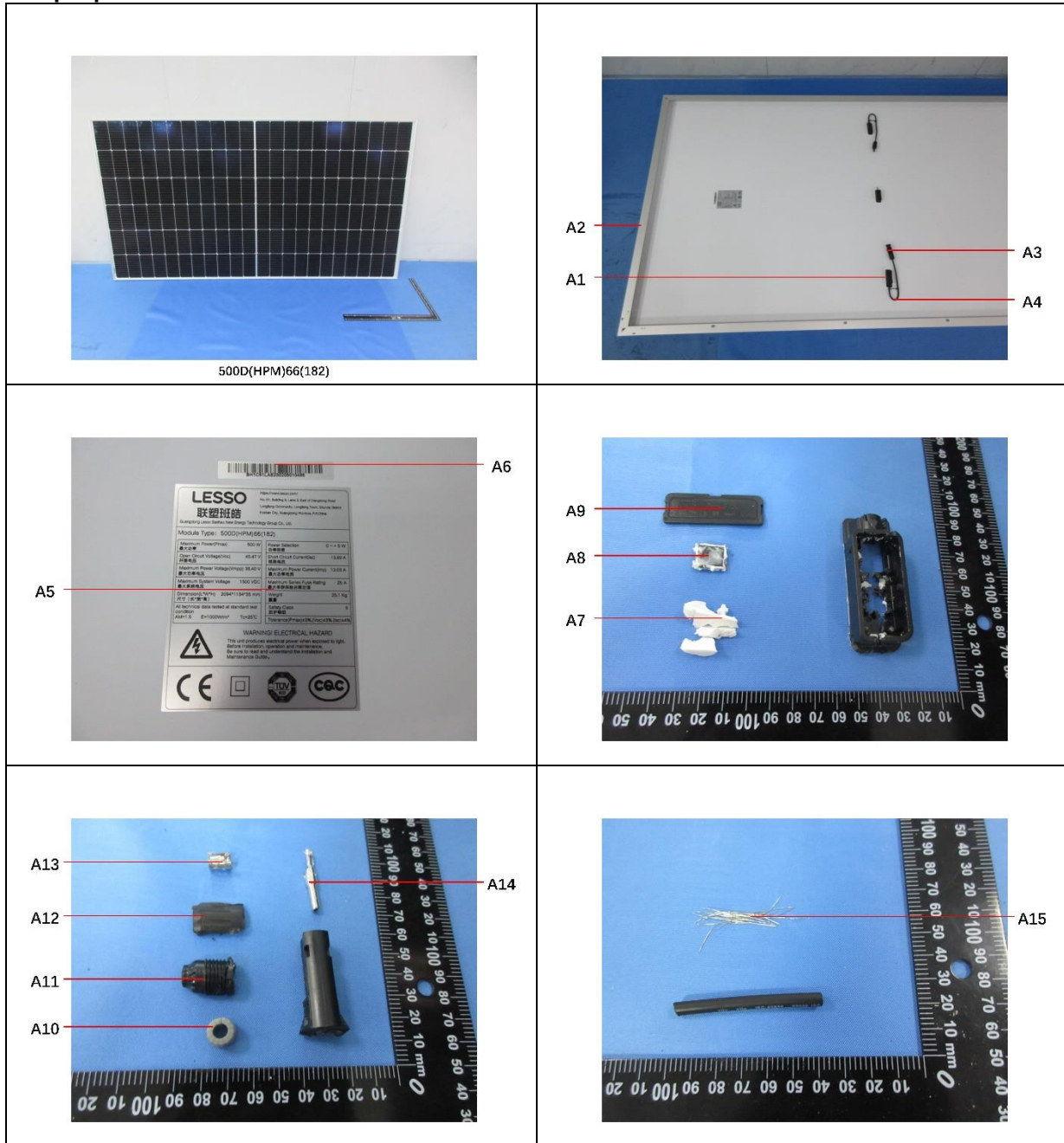
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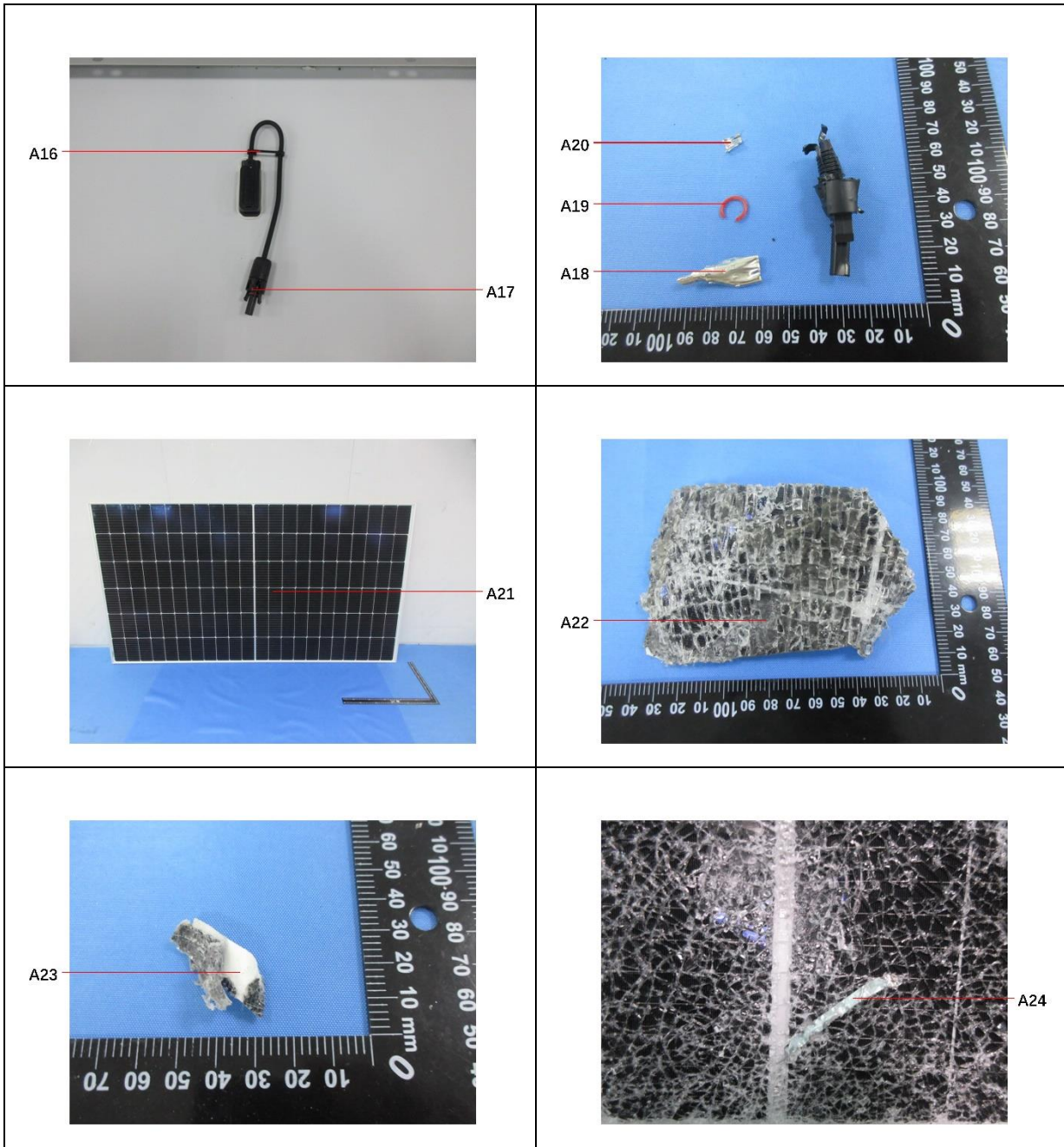
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Sample photos:





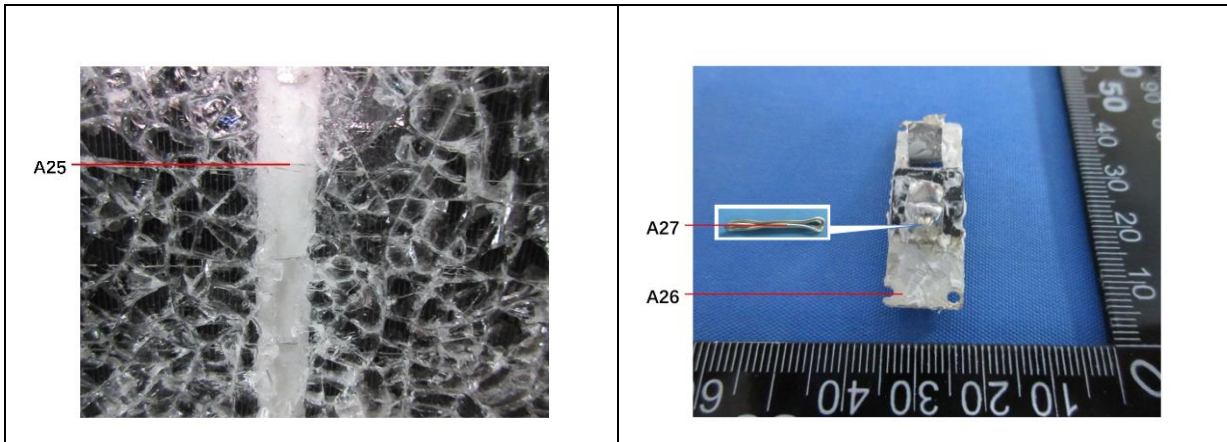


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