TEST REPORT

Report No	:	LCS210825051AS
CLIENT	:	Kingboard Laminates Holdings Limited
ADDRESS OF CLIENT	:	76 Daxin Road, Nanshan District, Shenzhen City, Guangdong Province, China
Name of sample	:	FR-4
Model	:	KB-6160, KB-6164, KB-6160A, KB-6160C, KB-6164F, KB-6165F, KB-6167F, HF-140, KB-6165G, KB-6165GC
INSPECTION CLASSIFICATION	:	Commission test
TEST ITEM	:	Ball pressure test and glow-wire test

Shenzhen LCS Compliance Testing Laboratory Ltd.

Test Report

Name of sample	FR-4	**Report No.**	LCS210825051AS
Model	KB-6160, KB-6164, KB-6160A, KB-6160C, KB-6164F, KB-6165F, KB-6167F, HF-140, KB-6165G, KB-6165GC	**Rating of sample**	--
Name of receipt	Delivering	**Inspection classification**	Commission test
Quantity of sample	21 pcs	**weight**	0.062kg
Test standard	IEC 60695-10-2:2014; IEC 60695-2-12:2010+A1:2014; IEC 60695-2-13:2010+A1:2014	**Sample characteristic and condition**	The sample was in good condition operation as normally
Client	Kingboard Laminates Holdings Limited		
Address of client	76 Daxin Road, Nanshan District, Shenzhen City, Guangdong Province, China		
Manufacturer	Same as the Applicant		
Testing laboratory	Shenzhen LCS Compliance Testing Laboratory Ltd.		
Address of Testing laboratory	Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China		
Test result	Measured data see report attached		
Ambient Temperature	25.0°C	**Relative Humidity**	57%
Test report Special-purpose seal	**Prepared by:**	Jade Xiao Project Handler	Jade Xiao
	Checked by:	Terry Zhu Reviewer	Terry Zhu
	Approved by:	Hart Qiu Technical Director	Hart Qiu
	Deliver date	2021-08-25	
	Date of issue	2021-09-02	

General comments

Statement:

- Part of this report shall not be reproduced without written approval of the laboratory, except in full.
- The test results in this report are only relevant to test samples.
- See attached table: Refers to the additional form to this report.
- Determination of possible test conditions:

N or (N/A) : Test conditions do not apply to this test product

P (Pass) : Test samples meet the requirements

F (Fail) : The test sample does not meet the requirements

Product Information Description

The product is FR-4. According to customer requirements, materials at two different positions in the shell are selected for flammability test according to the standard requirements.

The material used for this product is FR-4

Test report of attachment

1 Ball pressure test

Description of sample:

Test before, Sample surface no damage, no abnormal phenamenor

Test conditions and requirements:

-- Test basis: IEC60695-10-2:2014

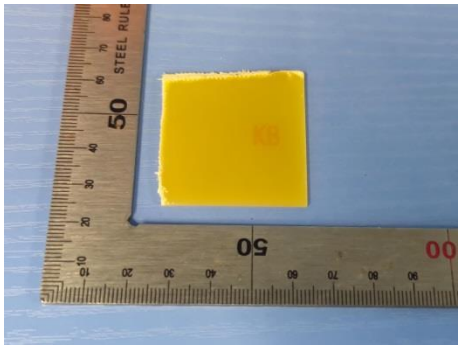
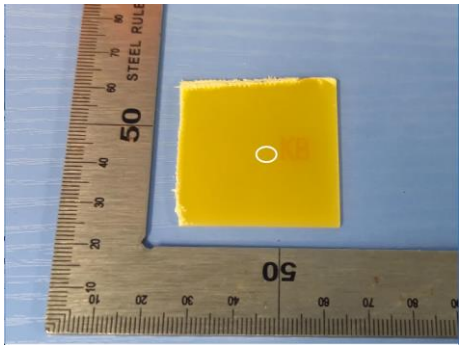
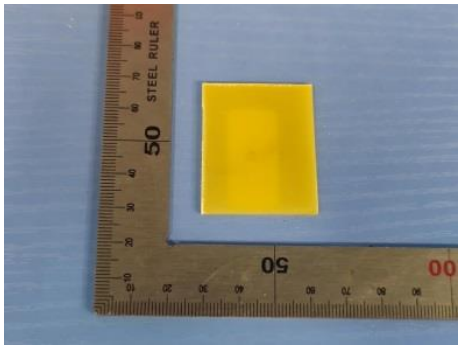
-- Sample requirements: square with side length ≥10mm or round with diameter ≥10mm, thickness above 3mm, test sheet thickness of 1.6mm, two stacked test;

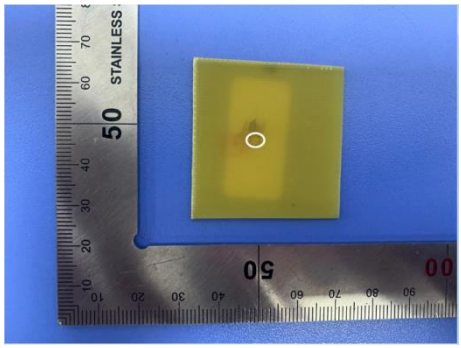
-- Conditions: the sample is placed in a horizontal position and 2.00kg steel ball is applied to the surface of the sample. This test shall be carried out in a heating chamber with a temperature of 160℃. The indentation diameter of the steel ball is measured after 1 hour. The indentation diameter is less than 2.00mm and the test passes.

Test results：

The sample model	Test temperature (℃)	Indentation size D (mm)		Test results
		Measured value	Required value	
KB-6160	160	0.80	≤2.0	P
KB-6164	160	0.86	≤2.0	P
KB-6160A	160	0.76	≤2.0	P
KB-6160C	160	0.76	≤2.0	P
KB-6164F	160	0.76	≤2.0	P
KB-6165F	160	0.76	≤2.0	P
KB-6167F	160	0.76	≤2.0	P
HF-140	160	0.84	≤2.0	P
KB-6165G	160	0.76	≤2.0	P
KB-6165GC	160	0.76	≤2.0	P

The appendix pictures：

	
Before the test(KB-6160)	In the test(KB-6160)
	
Temperature display interface（KB-6160）	After the test（KB-6160）
	
Before the test(KB-6164)	In the test(KB-6164)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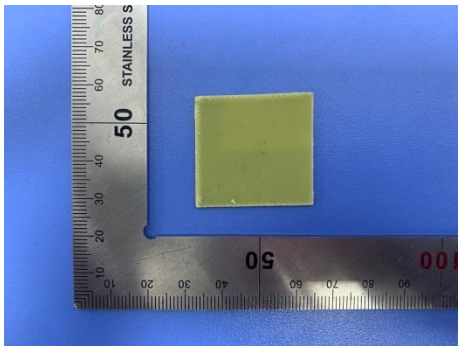
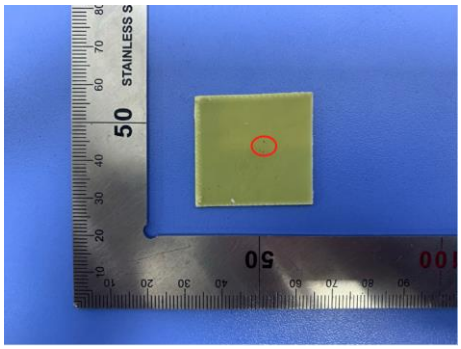
	
Before the test(KB-6160A)	In the test(KB-6160A)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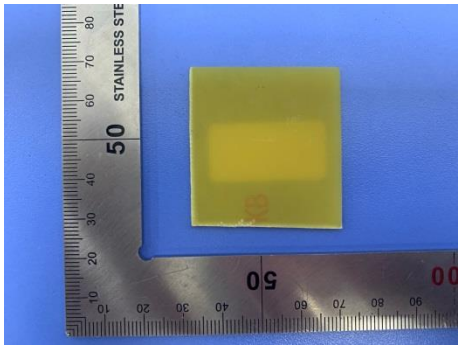	
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	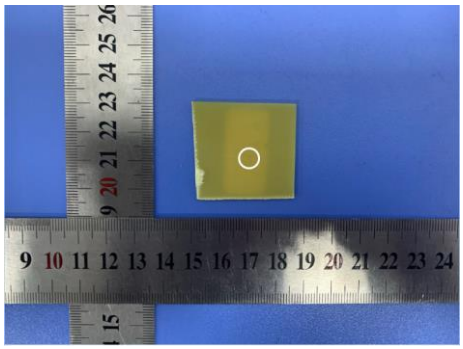
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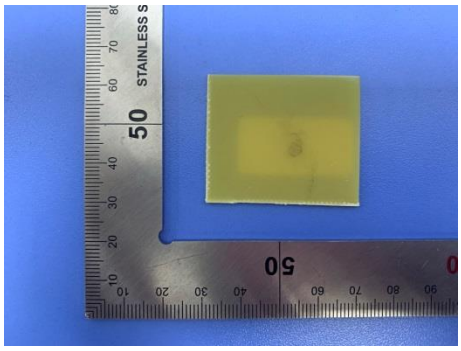
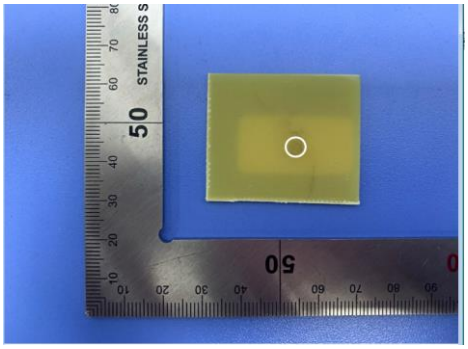
	
Before the test(KB-6164F)	In the test(KB-6164F)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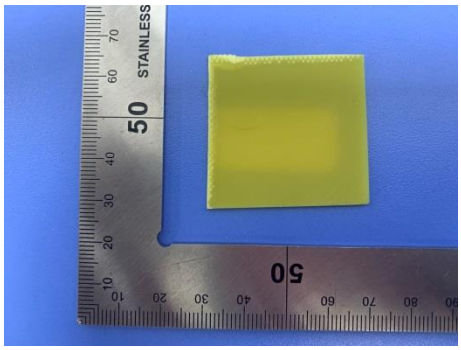	
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	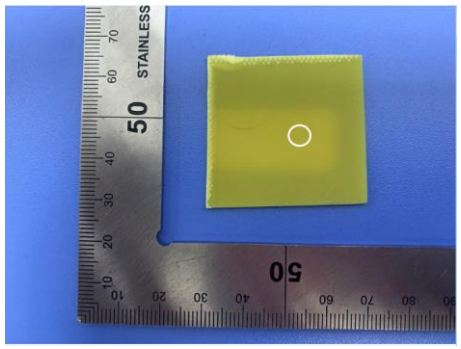
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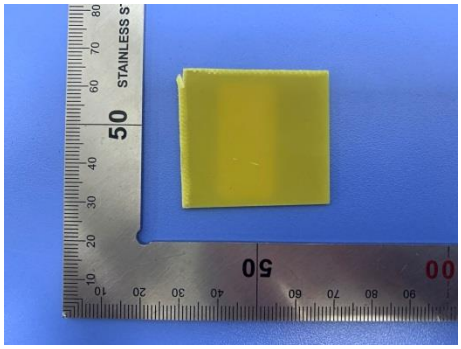	
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	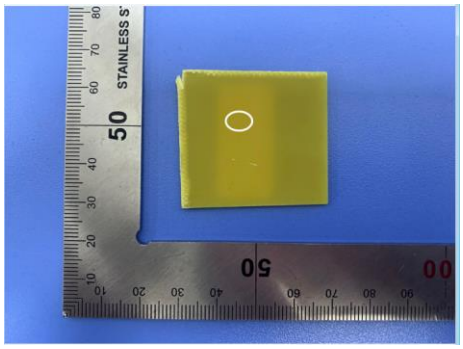
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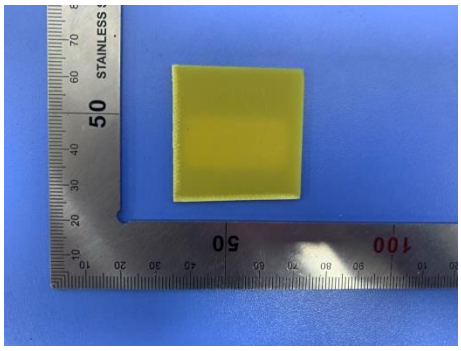
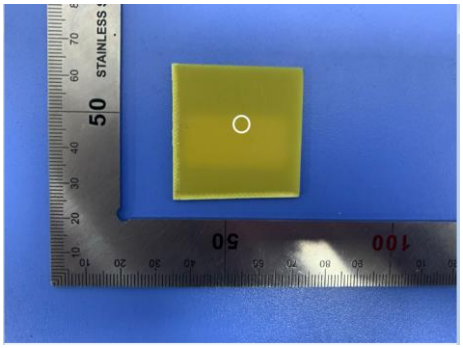
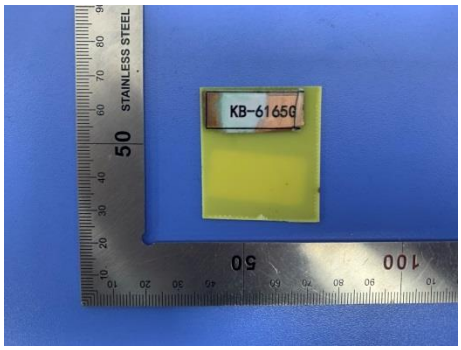
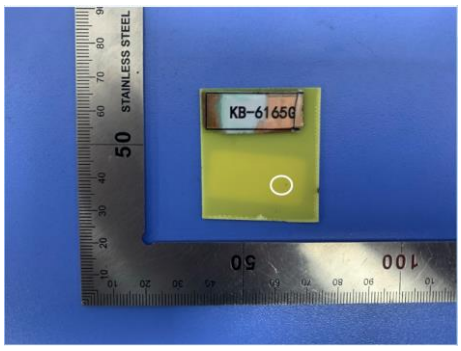
	
Before the test(HF-140)	In the test(HF-140)

	
Temperature display interface（HF-140）	After the test（HF-140）

	
Before the test(KB-6165G)	In the test(KB-6165G)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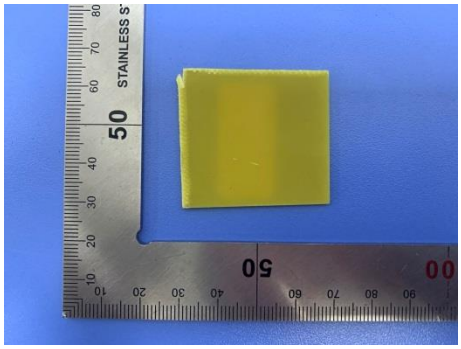	
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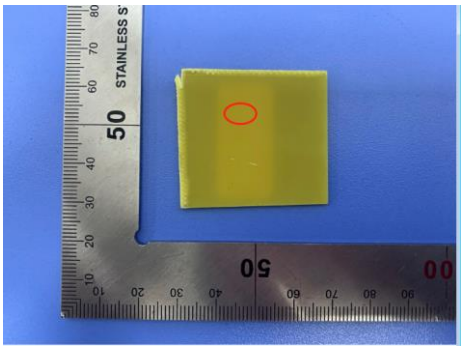
	
Temperature display interface（KB-6165GC）	After the test （KB-6165GC）

2.Glow-wire test

Description of sample:

Test before, Sample surface no damage, no abnormal phenamenor

Testing conditions and requirements：

-- Test basis: IEC 60695-2-12:2010+ A1:2014, IEC 60695-2-13:2010+ A1:2014;

-- Sample requirements: length ≥60mm, width ≥60mm, uniform thickness;

-- Conditions: Test temperature: 960℃, test time: 30s; Test the sample for ignition.

--Requirement: The sample shall not ignite.

Test results：

Glow-wire flammability index（GWFI）：

Sample model	Sample NO	Sample thickness	Test temperature (℃)	Glow-wire application time (s)	Does the sample ignite	Maximum duration test for flame and/or flame free combustion after the Glow-wire is removed t_R(s)	Whether the silk paper caught fire	Whether the sample is burnt out	Test results
KB-6160	01	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6160	02	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6160	03	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6164	01	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6164	02	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6164	03	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6160A	01	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6160A	02	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6160A	03	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6160C	01	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6160C	02	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6160C	03	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6164F	01	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6164F	02	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6164F	03	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6165F	01	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6165F	02	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6165F	03	1.6mm	960	30	NO	0	NO	NO	Pass
KB-6167F	01	1.1mm	960	30	NO	0	NO	NO	Pass
KB-6167F	02	1.1mm	960	30	NO	0	NO	NO	Pass

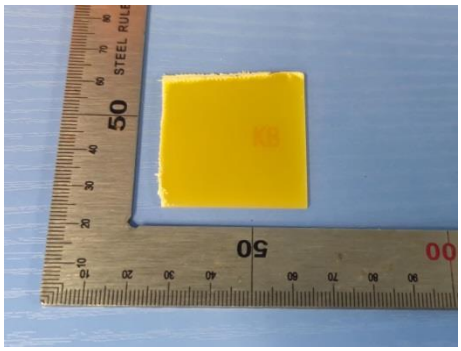
KB-6167F	03	1.1mm	960	30	NO	0	NO	NO	Pass
HF-140	01	1.5mm	960	30	NO	0	NO	NO	Pass
HF-140	02	1.5mm	960	30	NO	0	NO	NO	Pass
HF-140	03	1.5mm	960	30	NO	0	NO	NO	Pass
KB-6165G	01	0.9mm	960	30	NO	0	NO	NO	Pass
KB-6165G	02	0.9mm	960	30	NO	0	NO	NO	Pass
KB-6165G	03	0.9mm	960	30	NO	0	NO	NO	Pass
KB-6165GC	01	1.0mm	960	30	NO	0	NO	NO	Pass
KB-6165GC	02	1.0mm	960	30	NO	0	NO	NO	Pass
KB-6165GC	03	1.0mm	960	30	NO	0	NO	NO	Pass

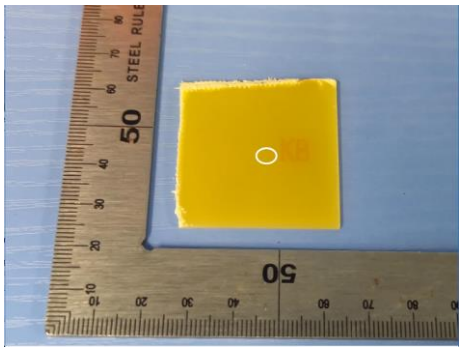
Hot wire ignition temperature（GWIT）

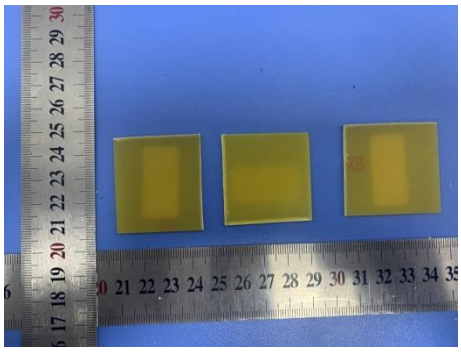
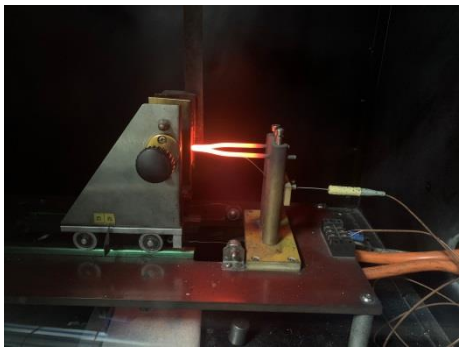
Sample model	Sample NO	Sample thickness	Test temperature (℃)	Glow-wire application time (s)	Does the sample ignite	The maximum duration of burning with flame and/or heat tE（s）	Whether the sample is burnt out	Test results
KB-6160	01	1.5mm	960	30	NO	0	NO	Pass
KB-6160	02	1.5mm	960	30	NO	0	NO	Pass
KB-6160	03	1.5mm	960	30	NO	0	NO	Pass
KB-6164	01	1.5mm	960	30	NO	0	NO	Pass
KB-6164	02	1.5mm	960	30	NO	0	NO	Pass
KB-6164	03	1.5mm	960	30	NO	0	NO	Pass
KB-6160A	01	1.6mm	960	30	NO	0	NO	Pass
KB-6160A	02	1.6mm	960	30	NO	0	NO	Pass
KB-6160A	03	1.6mm	960	30	NO	0	NO	Pass
KB-6160C	01	1.6mm	960	30	NO	0	NO	Pass
KB-6160C	02	1.6mm	960	30	NO	0	NO	Pass
KB-6160C	03	1.6mm	960	30	NO	0	NO	Pass
KB-6164F	01	1.5mm	960	30	NO	0	NO	Pass
KB-6164F	02	1.5mm	960	30	NO	0	NO	Pass
KB-6164F	03	1.5mm	960	30	NO	0	NO	Pass
KB-6165F	01	1.6mm	960	30	NO	0	NO	Pass
KB-6165F	02	1.6mm	960	30	NO	0	NO	Pass
KB-6165F	03	1.6mm	960	30	NO	0	NO	Pass
KB-6167F	01	1.1mm	960	30	NO	0	NO	Pass
KB-6167F	02	1.1mm	960	30	NO	0	NO	Pass
KB-6167F	03	1.1mm	960	30	NO	0	NO	Pass
HF-140	01	1.5mm	960	30	NO	0	NO	Pass

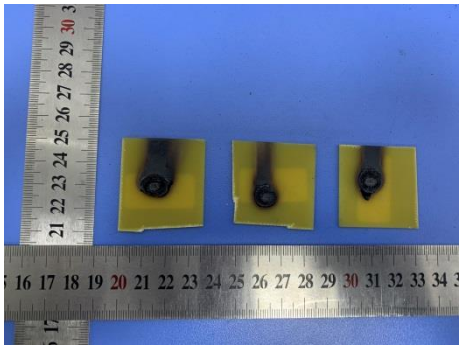
HF-140	02	1.5mm	960	30	NO	0	NO	Pass
HF-140	03	1.5mm	960	30	NO	0	NO	Pass
KB-6165G	01	0.9mm	960	30	NO	0	NO	Pass
KB-6165G	02	0.9mm	960	30	NO	0	NO	Pass
KB-6165G	03	0.9mm	960	30	NO	0	NO	Pass
KB-6165GC	01	1.0mm	960	30	NO	0	NO	Pass
KB-6165GC	02	1.0mm	960	30	NO	0	NO	Pass
KB-6165GC	03	1.0mm	960	30	NO	0	NO	Pass

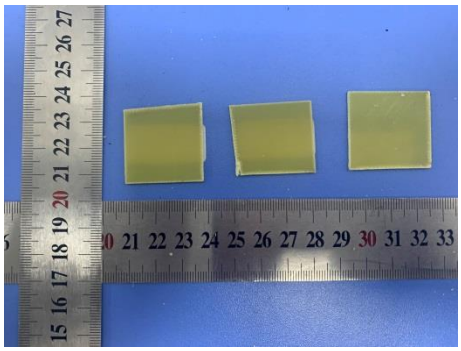
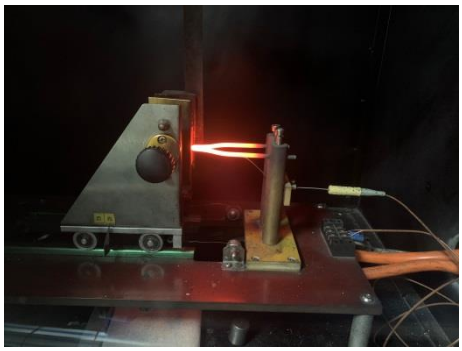
The appendix pictures：

	
Before the test(KB-6160)	In the test(KB-6160)

	
Temperature display interface（KB-6160）	After the test （KB-6160）

	
Before the test(KB-6164)	In the test(KB-6164)

	
Temperature display interface（KB-6164）	After the test（KB-6164）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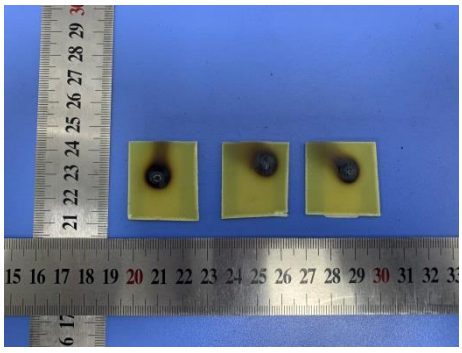
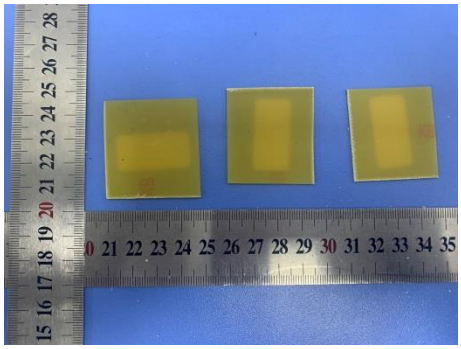
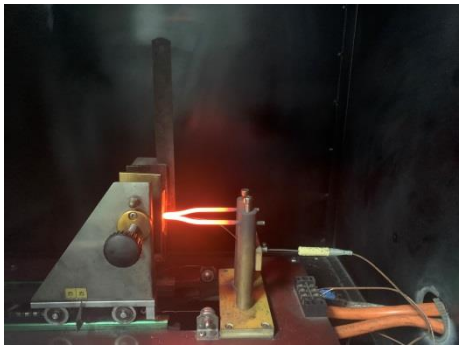
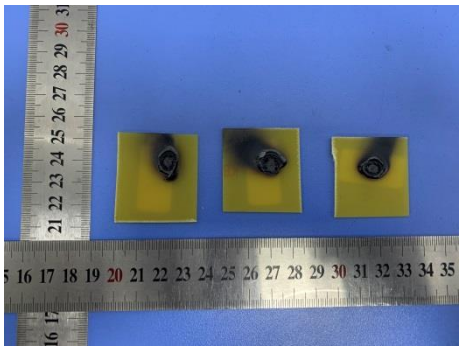
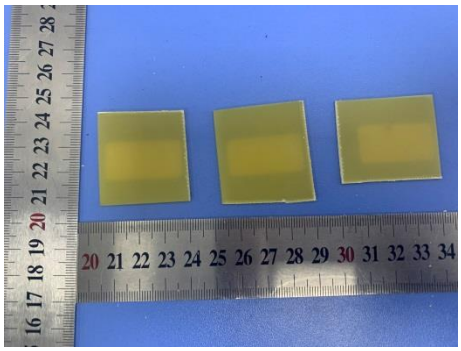
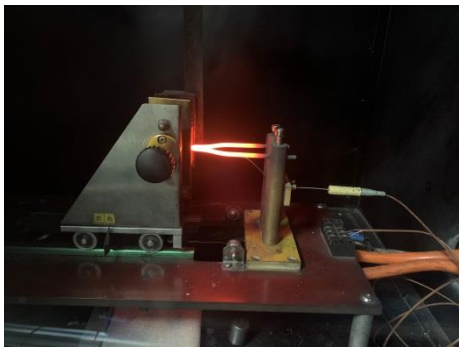
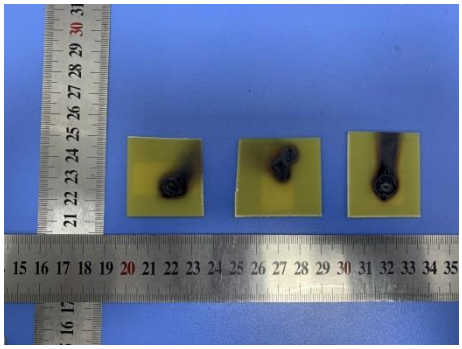
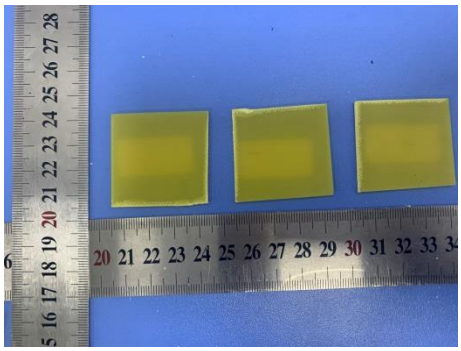
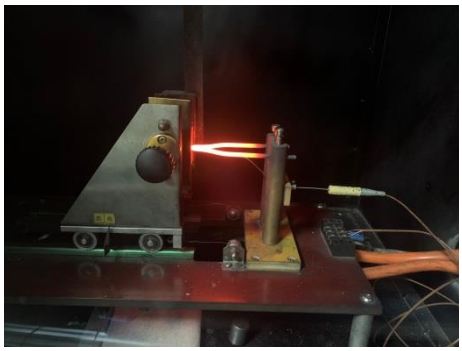
	
Temperature display interface（KB-6160A）	After the test（KB-6160A）

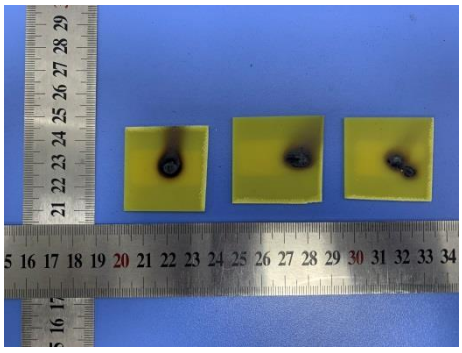
	
Before the test(KB-6160C)	In the test(KB-6160C)

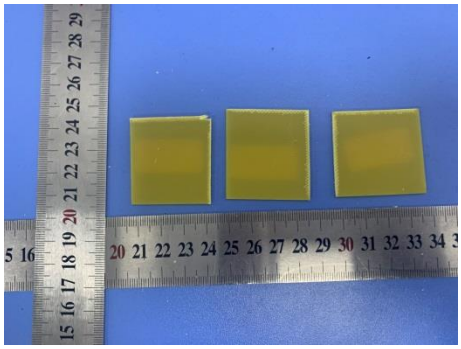
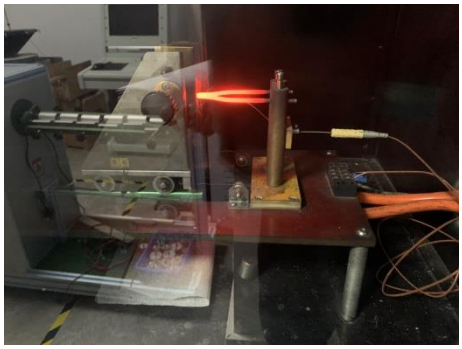
	
Temperature display interface （KB-6160C）	After the test （KB-6160C）

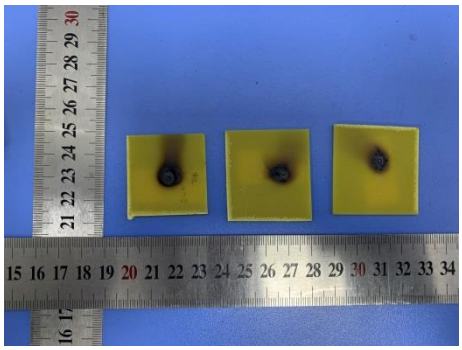
	
Before the test(KB-6164F)	In the test(KB-6164F)

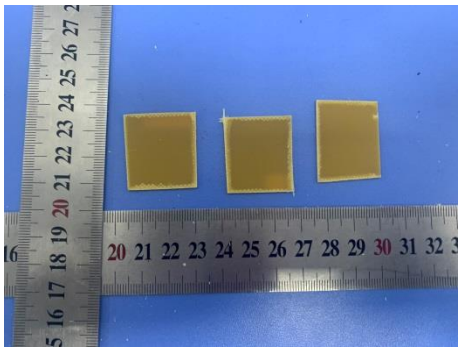
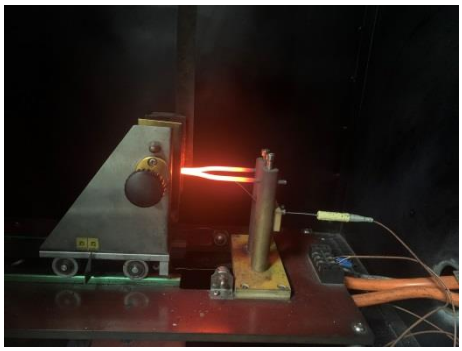
	
Temperature display interface（KB-6164F）	After the test（KB-6164F）

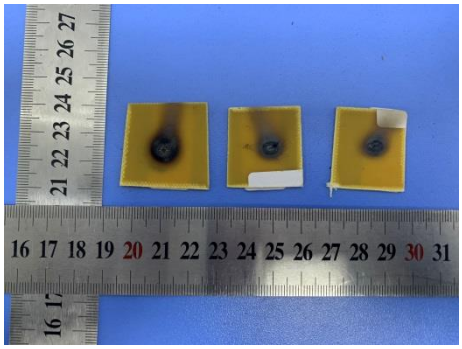
	
Before the test(KB-6165F)	In the test(KB-6165F)

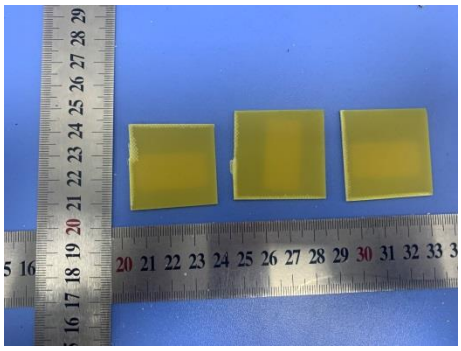
	
Temperature display interface（KB-6165F）	After the test（KB-6165F）

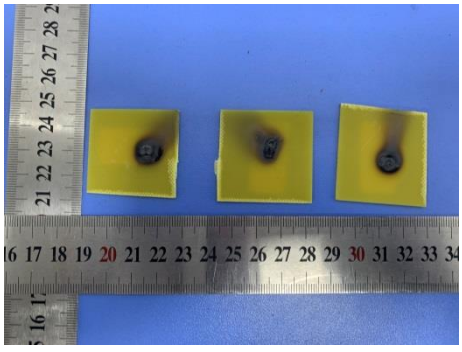
	
Before the test(KB-6167F)	In the test(KB-6167F)

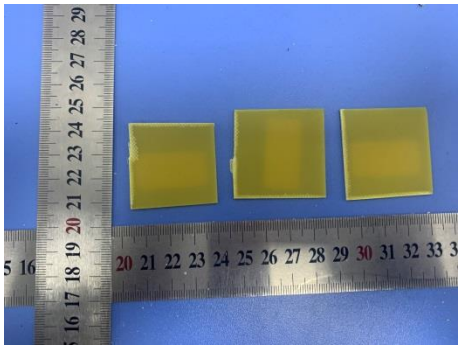
	
Temperature display interface（KB-6167F）	After the test （KB-6167F）

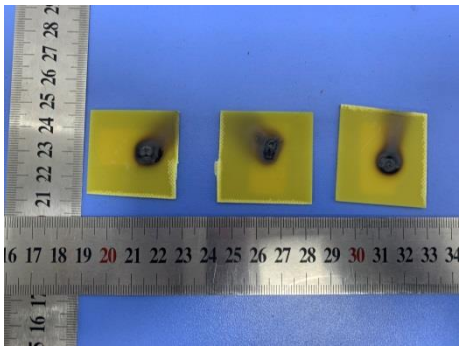
	
Before the test(HF-140)	In the test(HF-140)

	
Temperature display interface（HF-140）	After the test（HF-140）

	
Before the test(KB-6165G)	In the test(KB-6165G)

	
Temperature display interface（KB-6165G）	After the test（KB-6165G）

	
Before the test(KB-6165GC)	In the test(KB-6165GC)

	
Temperature display interface（KB-6165GC）	After the test （KB-6165GC）

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