Test Report

Report No.: THSH25080674250EN **Job No.:** 74250 **Date:** Aug. 12, 2025

Applicant	:	Shanghai Chip Dance Co., Ltd.
Address	:	Unit 06-08, 30th Floor, No. 150 Yaoyuan Road, China (Shanghai) Pilot Free Trade Zone
Sample Name	:	ELECTRONIC DETONATOR CONTROL MODULES
Sample Model	:	CBECM-CM-01/02/03, CBECM-TB-01/02/03, CBECM-TS-01/02/03, CBECM-EB-01/02/03, CBECM-ES-01/02/03
Sample Receiving date	:	2025-08-06
Test period	:	2025-08-06---2025-08-12
Test Requirement	:	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.
Test Method	:	Please refer to next page(s).
Test Result	:	Please refer to next page(s).
Conclusion	:	Please refer to next page(s).
Note	:	Applicant,address,sample name and model information have been provided by the customer.GTS is not responsible for its authenticity.

For and on behalf of

Shanghai Global Testing Services Co., Ltd.

Authorized Signature

Shi Lei/Kevin

General Manager -GTS/SHO

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A. Pb, Cd, Cr(VI), Hg, PBBs&PBDEs

Test Method:

1. Disassembly, disjointment and mechanical sample preparation
   －Ref. to IEC 62321-2: 2021, Disassembly, disjointment and mechanical sample preparation.
2. With reference to IEC 62321-1: 2013, tests were performed for the samples indicated by the photos in this report.

(1) Screening – Lead, mercury, cadmium, total chromium and total bromine
   －Ref. to IEC 62321-3-1: 2013, Screening for Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.

(2) Wet chemical test method
   a. Total Lead, Cadmium, Chromium and Mercury content
   －Ref. to IEC 62321-4: 2013+AMD1:2017, determination of Mercury in polymers, metals and electronics by ICP-OES.
   －Ref. to IEC 62321-5: 2013, determination of Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by ICP-OES.
   b. Chromium (VI) content
   －For Colourless and coloured corrosion-protected coatings on metals, Ref. to IEC 62321-7-1: 2015, determination of presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method.
   －For polymers and electronics, Ref. to IEC 62321-7-2: 2017, determination of hexavalent chromium (Cr(VI)) in polymers and electronics by the colorimetric method.
   c. PBBs, PBDEs
   －Ref. to IEC 62321-6: 2015, determination of polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatograhy -mass spectrometry (GC-MS).

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Test result(s):

Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	PCB board	BL	BL	BL	BL	BL	---	Pass
2	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
3	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
4	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
5	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
6	Silvery metal	BL	BL	BL	BL	---	---	Pass
7	PCB board	BL	BL	BL	BL	BL	---	Pass
8	Black plastic	BL	BL	BL	BL	BL	---	Pass
9	Golden metal	BL	BL	BL	BL	---	---	Pass
10	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
11	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
12	Electronic components	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
13	Solder tin	BL	BL	BL	BL	---	---	Pass

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Remark:

(^1) "---"= Not Applicable;

(^2) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

(b) The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample be of non-uniformity composition.

(c) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Pb, Cd, Hg), UV-VIS for Cr(VI) and GC/MSD (for PBBs/PBDEs) is recommended to be performed if the concentration exceeds the below warming value according to IEC 62321-3-1: 2013.

Attached table 1, XRF screening limits in mg/kg for regulated elements in various matrices:

Element	Polymer Materials	Metallic Materials	Composite material
Cd	BL≤(70-3σ)< X < (130+3σ) ≤OL	BL≤(70-3σ)< X < (130+3σ) ≤OL	LOD< X < (250+3σ) ≤OL
Pb	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(500-3σ)< X < (1500+3σ) ≤OL
Hg	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(500-3σ)< X < (1500+3σ) ≤OL
Br	BL≤(300-3σ)< X	N.A.	BL≤(250-3σ)< X
Cr	BL≤(700-3σ)< X	BL≤(700-3σ)< X	BL≤(500-3σ)< X

Note: ① BL "below limit" = the result less than the limit.

② OL "over limit" = the result greater than the limit.

③ IN = inconclusive, the region where need further chemical testing by ICP-OES (for Pb、Cd、Hg), UV-VIS (for Cr(VI)) and GC/MSD (for PBBs, PBDEs).

④ 3σ = Repeability of the analyser at the action level.

⑤ LOD = Limit of detection.

(^3) (a) mg/kg=ppm=0.0001%; (b) N.D. = Not detected (lower than RL);

(c) Reporting Limit (RL) and Limit of Directive 2011/65/EU.

Parameter	Unit	Limit	Reporting Limit (RL)
Lead (Pb)	mg/kg	1000	10
Cadmium (Cd)	mg/kg	100	10
Mercury (Hg)	mg/kg	1000	10
Chromium VI (Cr VI)	mg/kg	1000	R1
Group PBBs	mg/kg	1000	R2
Group PBDEs	mg/kg	1000	R2

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R1: Cr(VI) for metal sample, the reporting limit (RL)= Method Detection Limit (MDL)=0.10 ug/cm^2.
The reporting limit (RL) of Cr(VI) for polymers and electronics is 10mg/kg.

R2: The reporting limit (RL) for single compound of PBBs & PBDEs is 50mg/kg.

(d) According to IEC 62321-7-1: 2015, result on Cr(VI) for metal sample is shown as Negative, Inconclusive or Positive: Negative = Absence of Cr(VI), Inconclusive = Maybe exist Cr(VI), Positive = Presence of Cr(VI).

Colorimetric result (Cr(VI) concentration)	Qualitative result
The sample solution is < the 0.10 ug/cm^2 equivalent comparison standard solution	The sample is negative for Cr(VI)−The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
The sample solution is ≥ the 0.10 ug/cm^2 and ≤ the 0.13 ug/cm^2 equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence the determination. Recommendation: if addition samples are available, perform a total of 3 trials to increase sampling surface area. Use the averaged result of the 3 trials for the final determination.
The sample solution is > the 0.13 ug/cm^2 equivalent comparison standard solution	The sample is positive for Cr(VI)−The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI)

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B. Phthalates—DBP, BBP, DEHP & DIBP

Test Method: Ref. to IEC 62321-8: 2017

Determination of Phthalates in polymers by Gas Chromatography-Mass Spectrometry (GC-MS)

Test result:

Test item	DBP	BBP	DEHP	DIBP
Maximum Permissible Limit (mg/kg)	1000	1000	1000	1000

Material No.	Test item (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
1+7	N.D.	N.D.	N.D.	N.D.	Pass
2+3+4	N.D.	N.D.	N.D.	N.D.	Pass
5+10+11	N.D.	N.D.	N.D.	N.D.	Pass
8+12	N.D.	N.D.	N.D.	N.D.	Pass

Remark: 1. Reporting Limit (RL) for BBP, DBP, DEHP, DIBP=50mg/kg.
2. N.D. = Not Detected (<RL).

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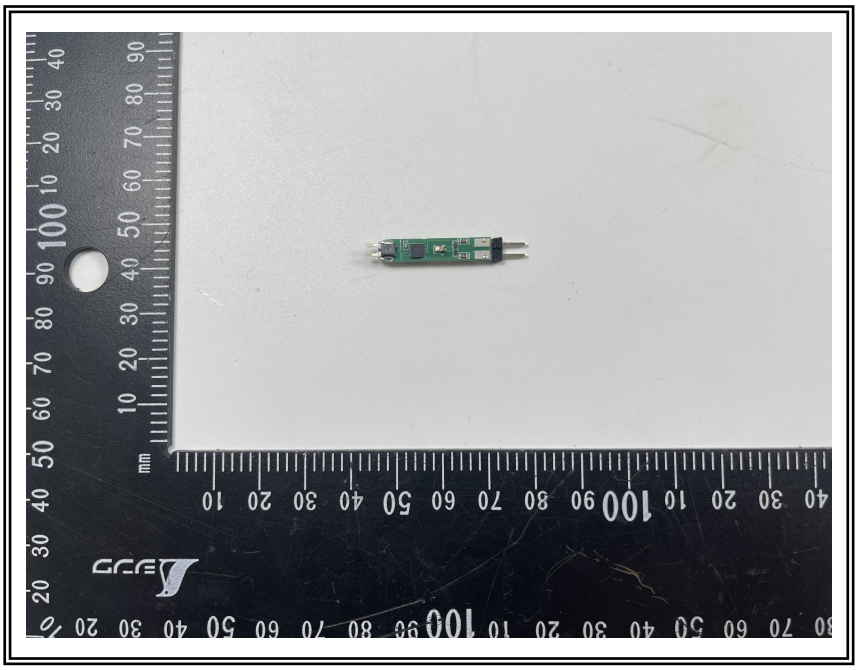
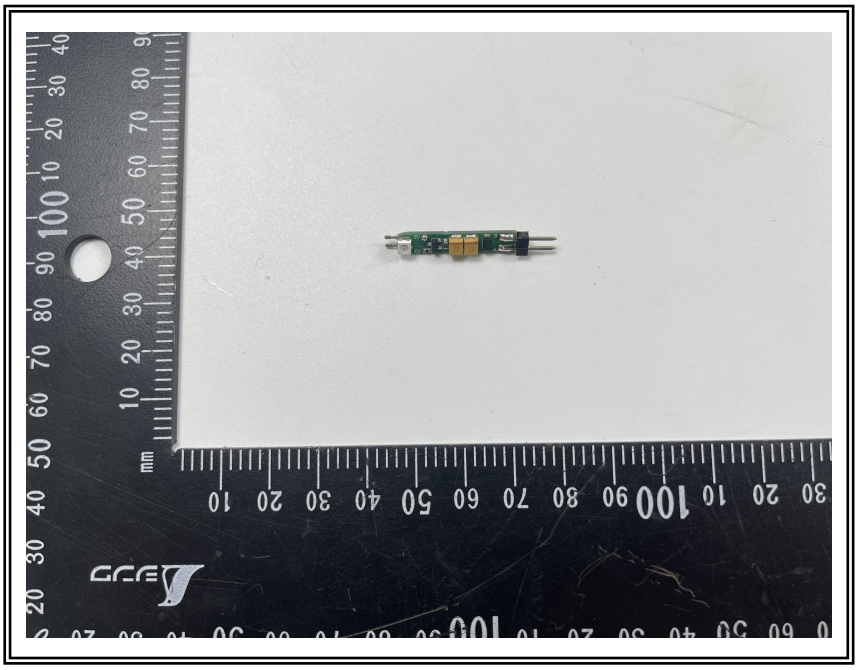
Sample photo(s):





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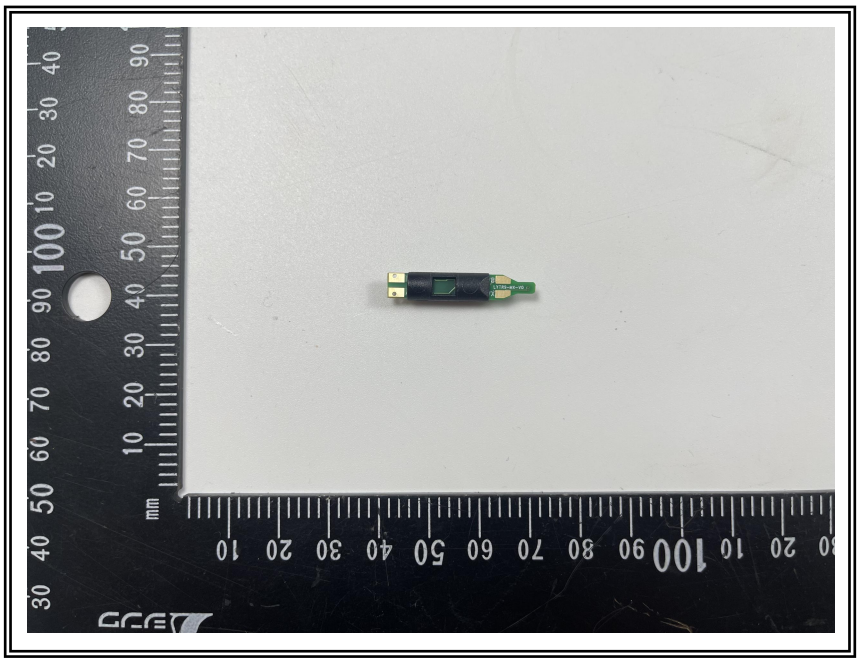

******End of Report******

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