

小矩科技（深圳）有限公司文件

Little Array Technology (Shenzhen) Co., Ltd. Documents

(Unit 215, 2F, A1, Zhimei Industry Park, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, 518103, China)

Notice Num:202305

EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Little Array Technology (Shenzhen) Co., Ltd.

Unit 215, 2F, A1, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, 518103, China

Hereby declares that the product:

USB HID To Serial Data Converter Module

Model: Zport Series USB-HID_IND

is in conformity with the following EU harmonization legislation:

2014/30/EU - EMC Directive

2011/65/EU, (EU) 2015/863 - RoHS Directive

and that the equipment is in conformity with the following harmonized and other appropriate standards:

2014/30/EU - EMC


EN 55032:2015/A1:2020 - Electromagnetic compatibility of multimedia equipment - Emission requirements

EN 55035:2017/A11:2020 - Electromagnetic compatibility of multimedia equipment - Immunity requirements

2011/65/EU, (EU) 2015/863 - RoHS

IEC 62321-3-1:2013 - Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

General Manager:

 Jack Zhao

Little Array Technology (Shenzhen) Co., Ltd.

August 25, 2023



Appendix 1. CE Attestation of Compliance

Appendix 2. EMC Test Report

Appendix 3. RoHS Verification Report



Attestation of Compliance

Reference No. : LCSA08163001E

Applicant : Little Array Technology (Shenzhen) Co., Ltd.

Address : Unit 215, 2F, A1, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, Guangdong, China

Trade Mark : ZPORT

Product : USB HID To Serial Data Converter Module

Model : Zport Series USB-HID_IND

Tested according to : EN 55032:2015/A1:2020
EN 55035:2017/A11:2020

The submitted products have been tested by us with the listed standards.

This Attestation of Compliance is issued according to the council Directive 2014/30/EU, Referred to as the Electromagnetic Compatibility. It confirms that the listed product complies with all essential requirements of the EMC directive and applies only to the sample and its technical documentation submitted to Shenzhen LCS Compliance Testing Laboratory Ltd. for testing.

After preparation of the necessary technical documentation as well as the EC conformity declaration the required CE marking can be affixed on the product. Other relevant Directives have to be observed.



Date of issue: August 23, 2023





EMC TEST REPORT

For

Little Array Technology (Shenzhen) Co., Ltd.

USB HID To Serial Data Converter Module

Test Model: Zport Series USB-HID_IND

Prepared for : Little Array Technology (Shenzhen) Co., Ltd.
Address : Unit 215, 2F, A1, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, Guangdong, China
Telephone : +86-755-89990959
Fax : +86-755-89990959-Ext.1003
Web : www.LittleArray.com
Mail : Info@LittleArray.com

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China
Tel : +(86) 0755-82591330
Fax : +(86) 0755-82591332
Web : www.lcs-cert.com
Mail : webmaster@lcs-cert.com

Date of receipt of test sample : August 17, 2023
Number of tested samples : 1
Serial number : Prototype
Date of Test : August 17, 2023 to August 23, 2023
Date of Report : August 23, 2023





TEST REPORT

Report No.	: LCSA08163001E
Date of Issue	: August 23, 2023
Testing Laboratory Name	: Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure	: Full application of Harmonised standards <input checked="" type="checkbox"/> Partial application of Harmonised standards <input type="checkbox"/> Other standard testing method <input type="checkbox"/>
Applicant's Name	: Little Array Technology (Shenzhen) Co., Ltd.
Address	: Unit 215, 2F, A1, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, Guangdong, China
Test Specification	
Standard	: EN 55032:2015/A1:2020 EN 55035:2017/A11:2020
Test Report Form No.	: LCSEMC-1.0
TRF Originator	: Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	: Dated 2011-03
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Test Item Description	: USB HID To Serial Data Converter Module
Trade Mark	: ZPORT
Test Model	: Zport Series USB-HID_IND
Result	: Positive

Compiled by:

Cindy Nie

Cindy Nie / File Administrator

Supervised by:

Baron Wen

Baron Wen / Technique principal

Approved by:



Gavin Liang / Manager





TEST REPORT

Test Report No.: LCSA08163001E	<u>August 23, 2023</u> Date of issue
---------------------------------------	---

Test Model	: Zport Series USB-HID_IND
EUT	: USB HID To Serial Data Converter Module
Applicant	: Little Array Technology (Shenzhen) Co., Ltd.
Address	: Unit 215, 2F, A1, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, Guangdong, China
Telephone	: +86-755-89990959
Fax	: +86-755-89990959-Ext.1003
Web	: www.LittleArray.com
Mail	: Info@LittleArray.com
Manufacturer	: Little Array Technology (Shenzhen) Co., Ltd.
Address	: Unit 215, 2F, A1, Fuhai Industrial Zone B2, Fuyong Street, Baoan District, Shenzhen, Guangdong, China
Telephone	: +86-755-89990959
Fax	: +86-755-89990959-Ext.1003
Web	: www.LittleArray.com
Mail	: Info@LittleArray.com
Factory	: Shenzhen Maikesi Technology Co., Ltd.
Address	: Room 206, Building B, Wanhefeng Industrial Park, No.7 Yumiao Road, Keyuan Community, Buji Street, Longgang District, Shenzhen, Guangdong, China
Telephone	: /
Fax	: /

Test Result	Positive
--------------------	-----------------

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	August 23, 2023	Initial Issue	/





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1. TEST STANDARDS

The tests were performed according to following standards:

EN 55032:2015/A1:2020: Electromagnetic compatibility of multimedia equipment - Emission requirements

EN 55035:2017/A11:2020: Electromagnetic compatibility of multimedia equipment - Immunity requirements.





2. SUMMARY OF STANDARDS AND RESULTS

2.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Limits	Result
Radiated emissions (30MHz-1GHz)	EN 55032:2015/A1:2020	Class B	Pass
Electrostatic discharges	EN 55035:2017/A11:2020	Contact Discharge: +/- 4kV Air Discharge: +/- 8kV	Pass
RF electromagnetic field disturbances	EN 55035:2017/A11:2020	3V/m, 80%, 1kHz Amp. Mod.	Pass





2.2 Description of Test Modes

No	Title	Description
TM1	Working(DC)	Record

2.3 Description of Performance Criteria

General Performance Criteria

Performance Criteria A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance Criteria B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended.

The performance level may be replaced by a permissible loss of performance.

If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Performance Criteria C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.





3. GENERAL INFORMATION

3.1 Description of Device (EUT)

EUT	: USB HID To Serial Data Converter Module
Test Model	: Zport Series USB-HID_IND
Power Supply	: DC24V, 300mA, Max 8W
Highest Internal Frequency	: $f \leq 108\text{MHz}$
Classification of Equipment	: Class B

3.2 Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Lenovo	PC	Lenovo E41-55	MP23YTFFQ	/

3.3 Description of Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

3.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emission (30MHz to 1000MHz)	$\pm 3.48 \text{ dB}$
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.	





4. MEASURING DEVICES AND TEST EQUIPMENT

Radiated emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Pre-amplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08

Electrostatic discharges					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
ESD Simulator	SCHLODER	SESD 230	604035	2023-07-17	2024-07-16

RF electromagnetic field disturbances					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
MXG Vector Signal Generator	Agilent	E4438C	MY42081396(6G)	2023-06-09	2024-06-08
RF POWER AMPLIFIER	SKET	HAP_0306G-50W	/	2023-06-09	2024-06-08
RF POWER AMPLIFIER	OPHIR	5225R	1052	2023-06-09	2024-06-08
RF POWER AMPLIFIER	OPHIR	5273F	1019	2023-06-09	2024-06-08
Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	/	/
Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-484	/	/
RS Electric field probe	narda	EP601	611WX80208	2023-06-09	2024-06-08





5. EMISSION TEST RESULTS (EMI)

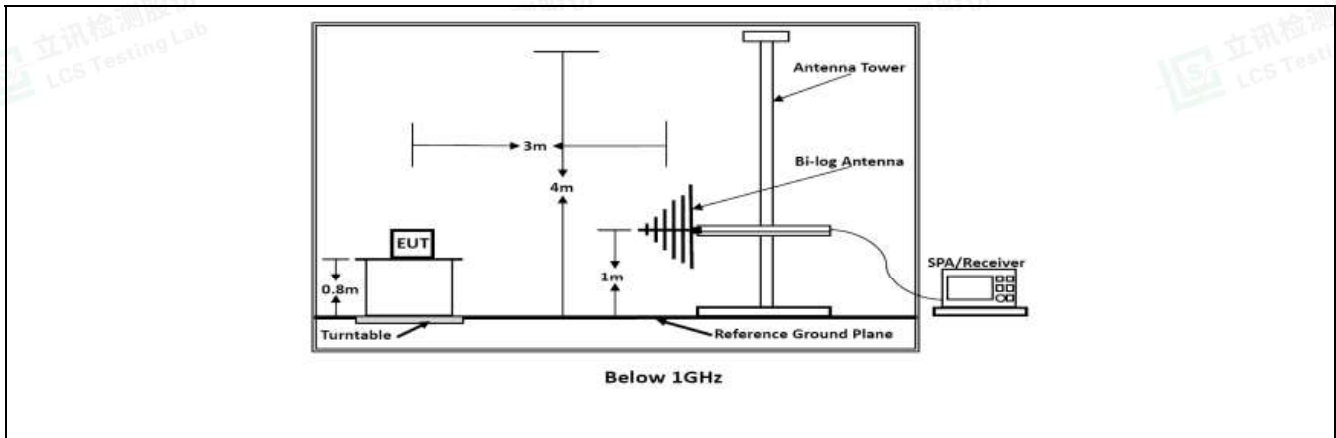
5.1 Radiated emissions (30MHz-1GHz)

Test Requirement:	Class B		
Test Limit:	Frequency (MHz)	Limit [dB(uV/m) at 10m]	Limit [dB(uV/m) at 3m]
	30 to 230	30	40
	230 to 1000	37	47
	Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz	
Test Method:	Clause 7.3 of CISPR 16-2-3:2016		
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor		

5.1.1 E.U.T. Operation:

Operating Environment:			
Temperature:	22.3 °C	Humidity:	53 %
		Atmospheric Pressure:	102 kPa
Pre test mode:	TM1		
Final test mode:	TM1		

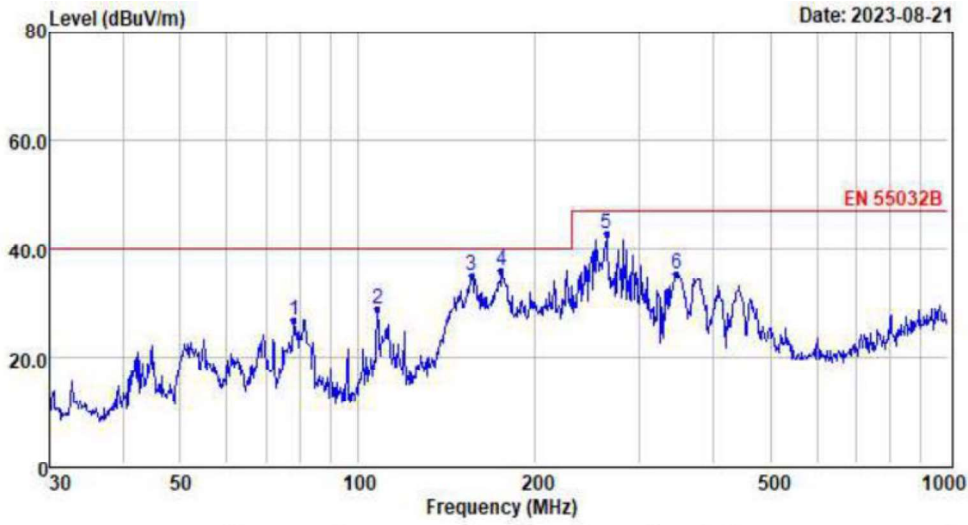
5.1.2 Test Setup Diagram:





5.1.3 Test Data:

TM1 / Polarization: Horizontal



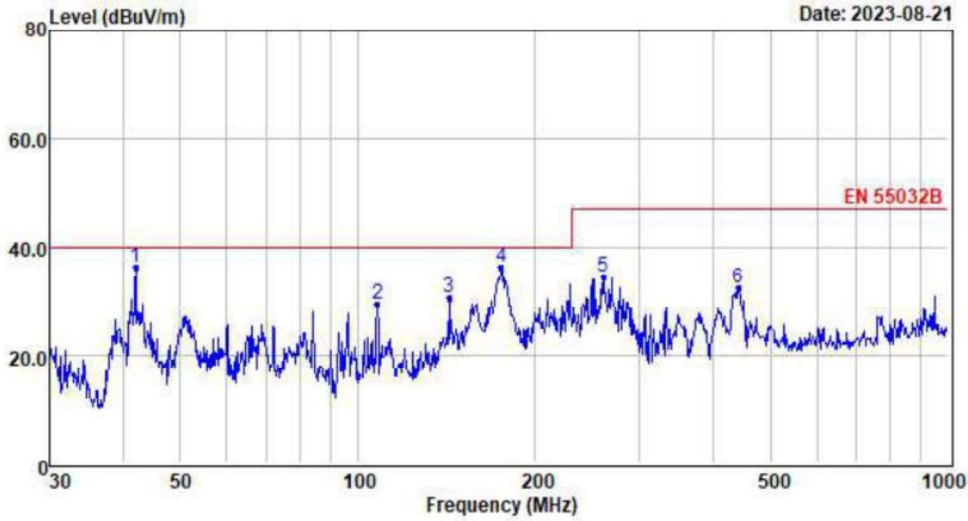
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	77.87	16.24	0.73	9.88	26.85	40.00	-13.15	QP
2	107.89	16.83	0.84	11.26	28.93	40.00	-11.07	QP
3	155.91	25.12	1.06	9.00	35.18	40.00	-4.82	QP
4	175.04	25.18	1.12	9.75	36.05	40.00	-3.95	QP
5	263.82	28.69	1.28	12.85	42.82	47.00	-4.18	QP
6	346.81	19.24	1.36	14.73	35.33	47.00	-11.67	QP

- Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported





TM1 / Polarization: Vertical



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	42.01	24.29	0.53	11.46	36.28	40.00	-3.72	QP
2	107.89	17.29	0.84	11.26	29.39	40.00	-10.61	QP
3	142.82	21.05	1.01	8.56	30.62	40.00	-9.38	QP
4	175.04	25.48	1.12	9.75	36.35	40.00	-3.65	QP
5	261.06	20.45	1.28	12.76	34.49	47.00	-12.51	QP
6	441.74	15.36	1.44	15.67	32.47	47.00	-14.53	QP

- Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported





6. IMMUNITY TEST RESULTS (EMS)

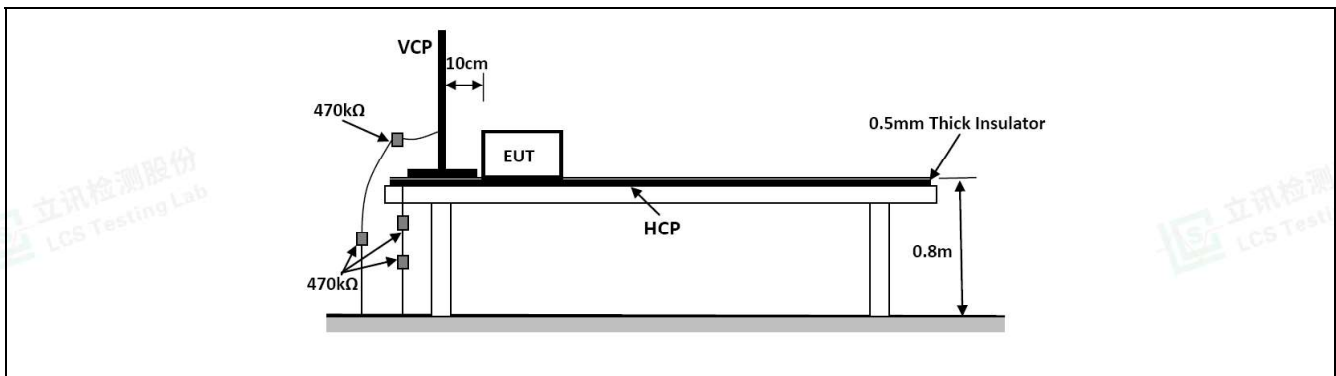
6.1 Electrostatic discharges

Test Requirement:	Contact Discharge: +/- 4kV Air Discharge: +/- 8kV
Test Method:	EN 61000-4-2: 2009
Procedure:	Discharge Impedance: 330Ω/150pF Number of Discharge: Minimum 10 times at each test point Discharge Mode: Single Discharge Discharge Period: 1 second minimum
Performance Criteria:	B

6.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.4 °C	Humidity:	46.9 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.1.2 Test Setup Diagram:





6.1.3 Test Data:

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	2,4,8	+	10	B
Air discharge	2,4,8	-	10	B
Contact discharge	4	+	10	B
Contact discharge	4	-	10	B
Horizontal Coupling	4	+	10	B
Horizontal Coupling	4	-	10	B
Vertical Coupling	4	+	10	B
Vertical Coupling	4	-	10	B

A: No degradation in the performance of the EUT was observed.





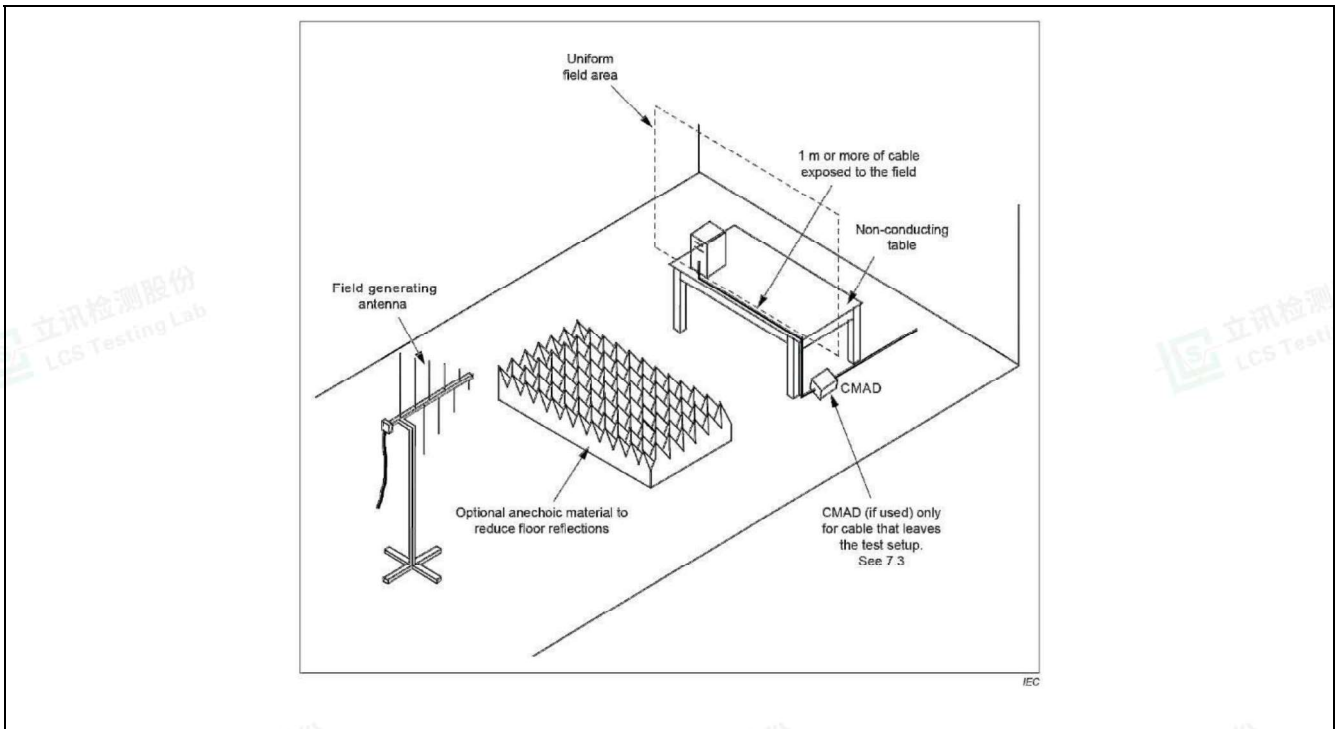
6.2 RF electromagnetic field disturbances

Test Requirement:	3V/m, 80%, 1kHz Amp. Mod.
Test Method:	EN IEC 61000-4-3: 2020
Procedure:	Frequency Range: 80MHz to 1GHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz Antenna Polarisation: Vertical and Horizontal Modulation: 1kHz,80% Amp. Mod,1% increment
Performance Criteria:	A

6.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.4 °C	Humidity:	46.9 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.2.2 Test Setup Diagram:





6.2.3 Test Data:

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-1GHz	3	Front, Back, Left, Right, Top, Bottom	3s	A
1800MHz	3	Front, Back, Left, Right, Top, Bottom	3s	A
2600MHz	3	Front, Back, Left, Right, Top, Bottom	3s	A
3500MHz	3	Front, Back, Left, Right, Top, Bottom	3s	A
5000MHz	3	Front, Back, Left, Right, Top, Bottom	3s	A

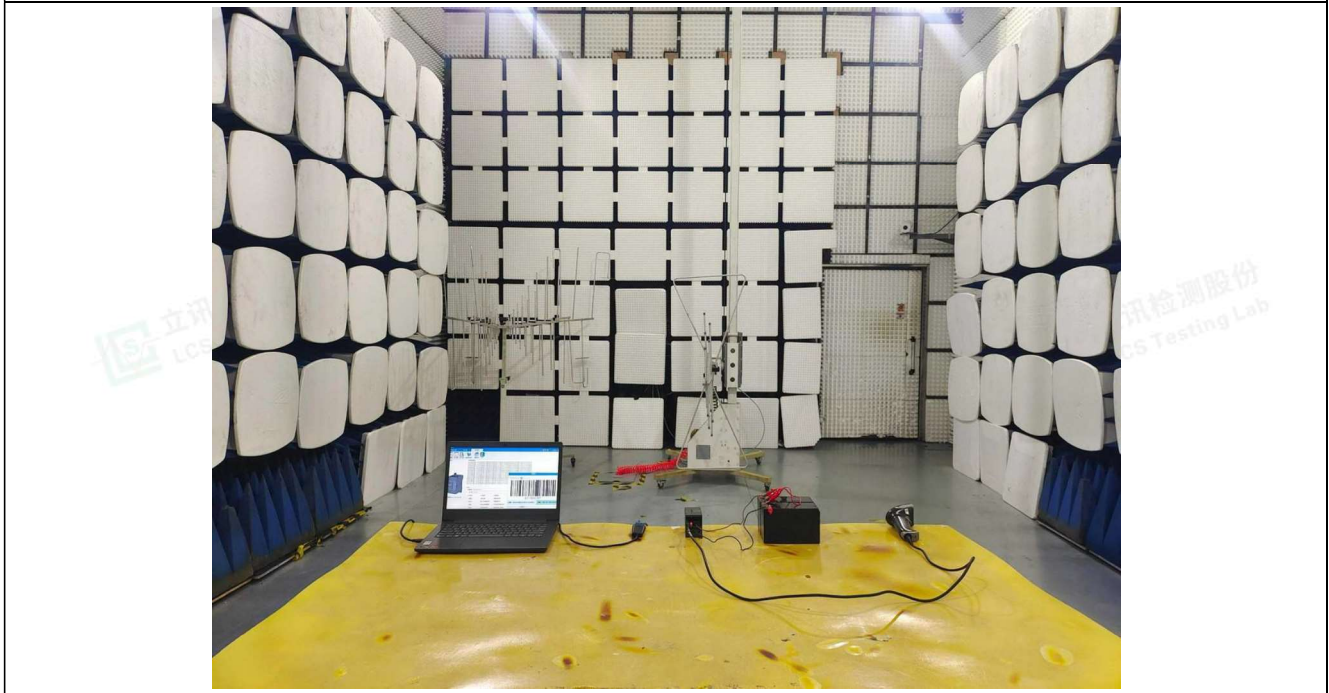
A: No degradation in the performance of the EUT was observed.



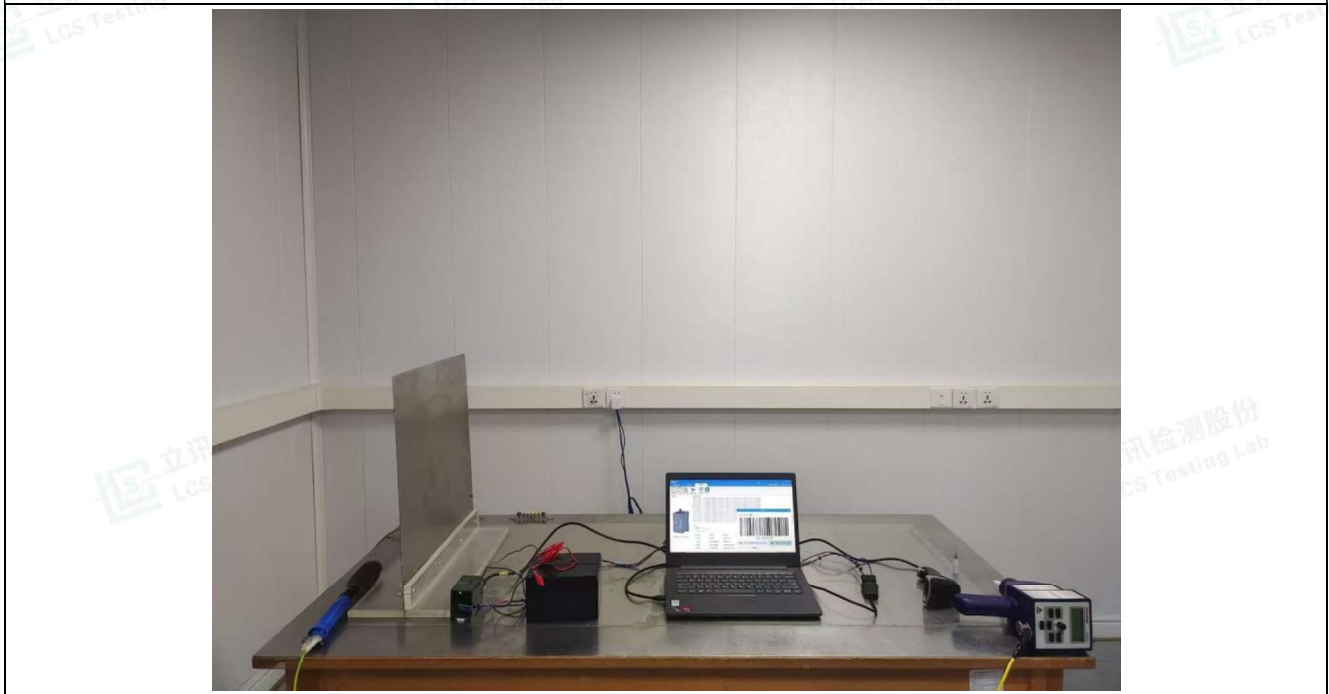


7. TEST SETUP PHOTOS

Radiated emissions (30MHz-1GHz)

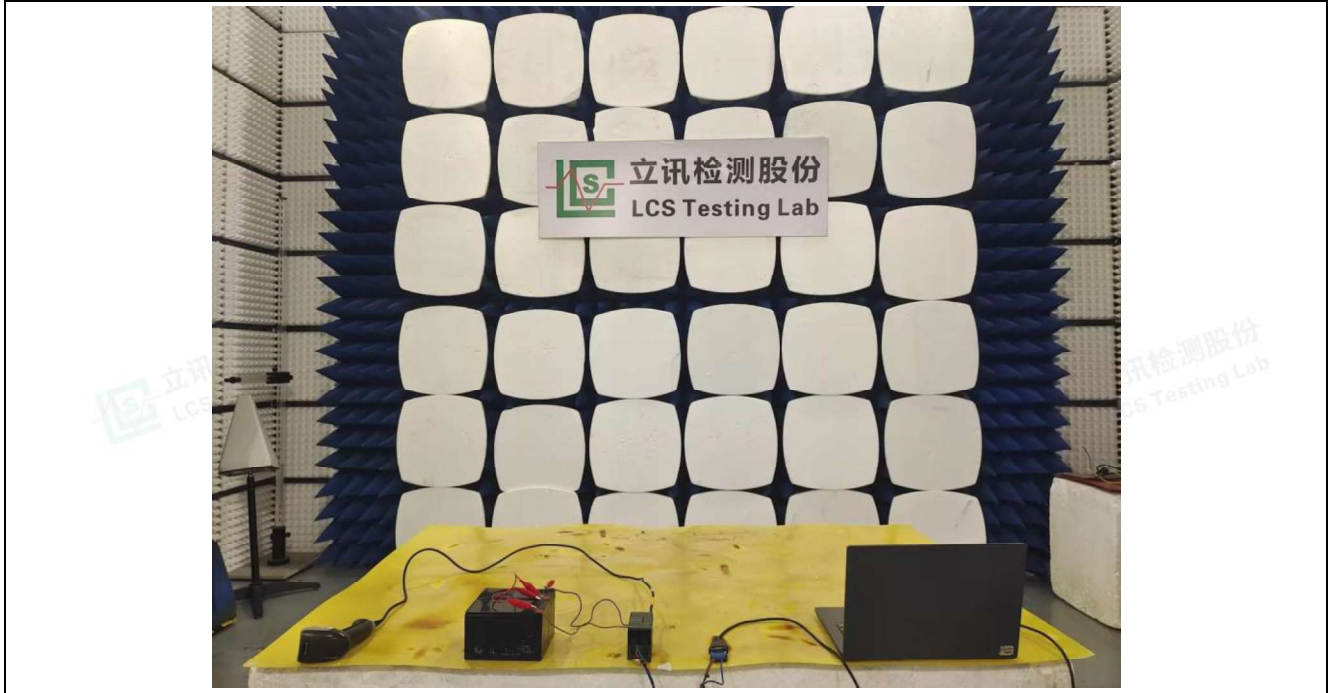


Electrostatic discharges



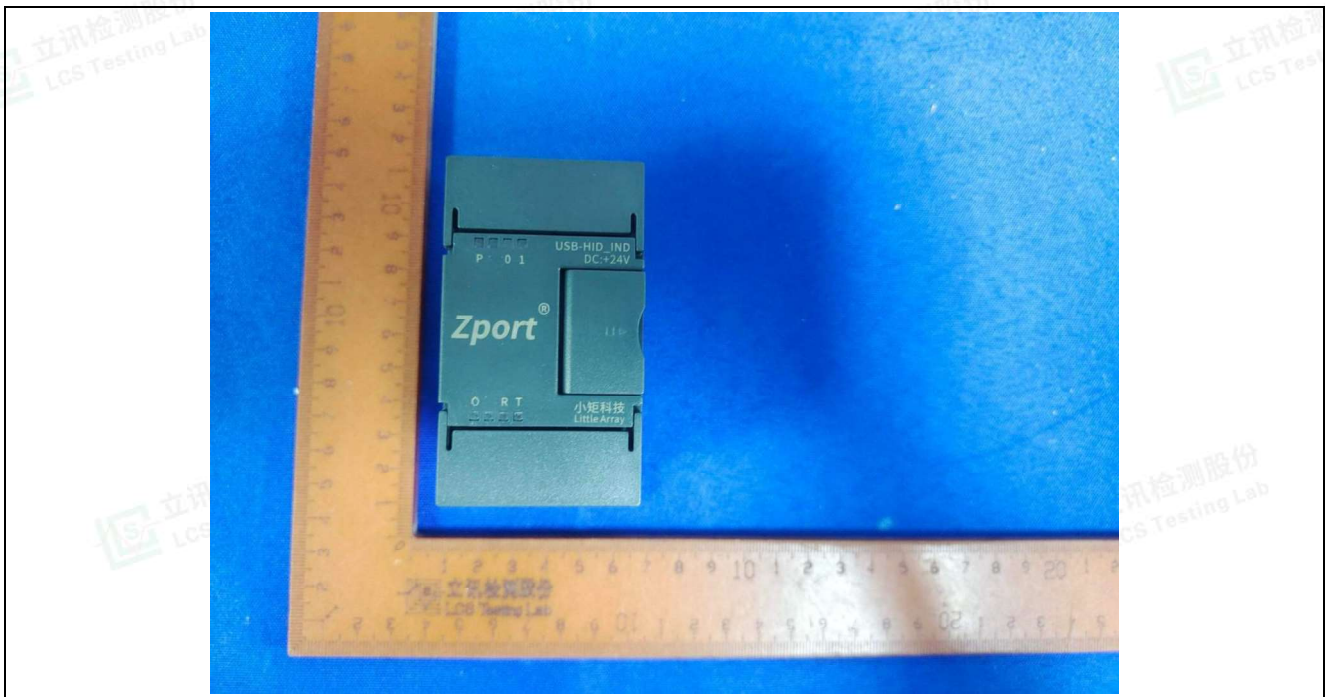


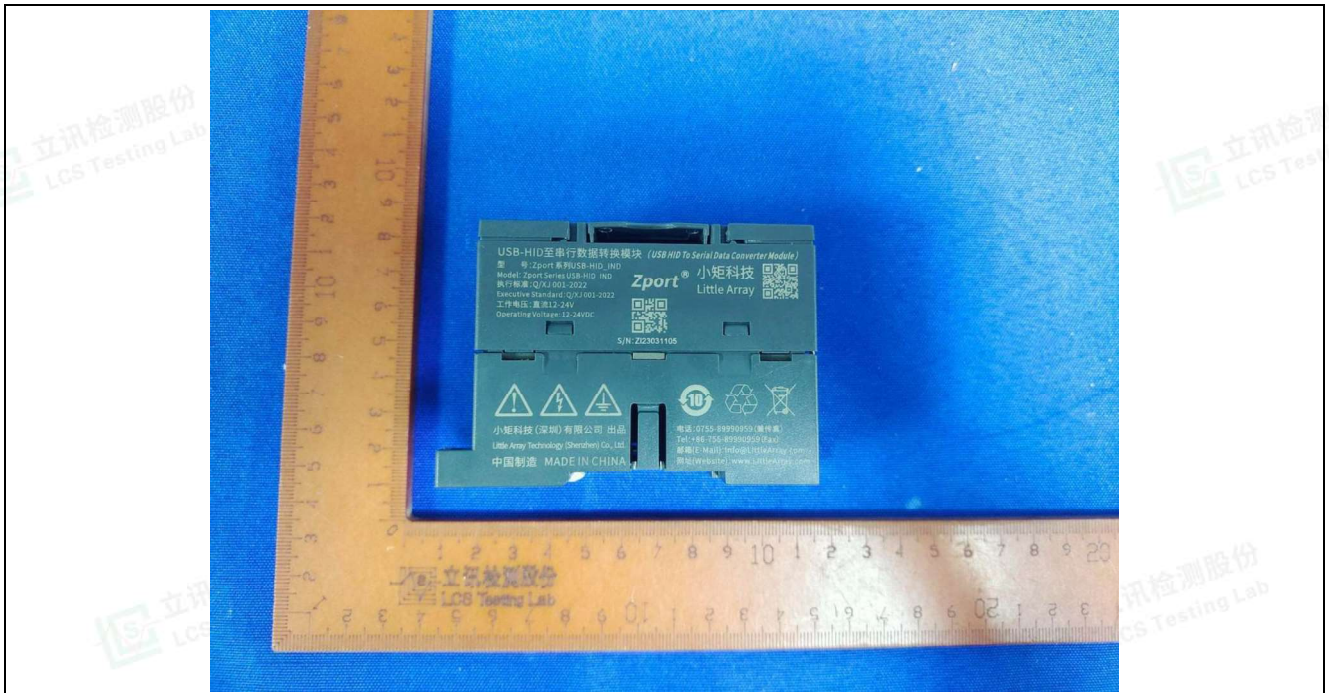
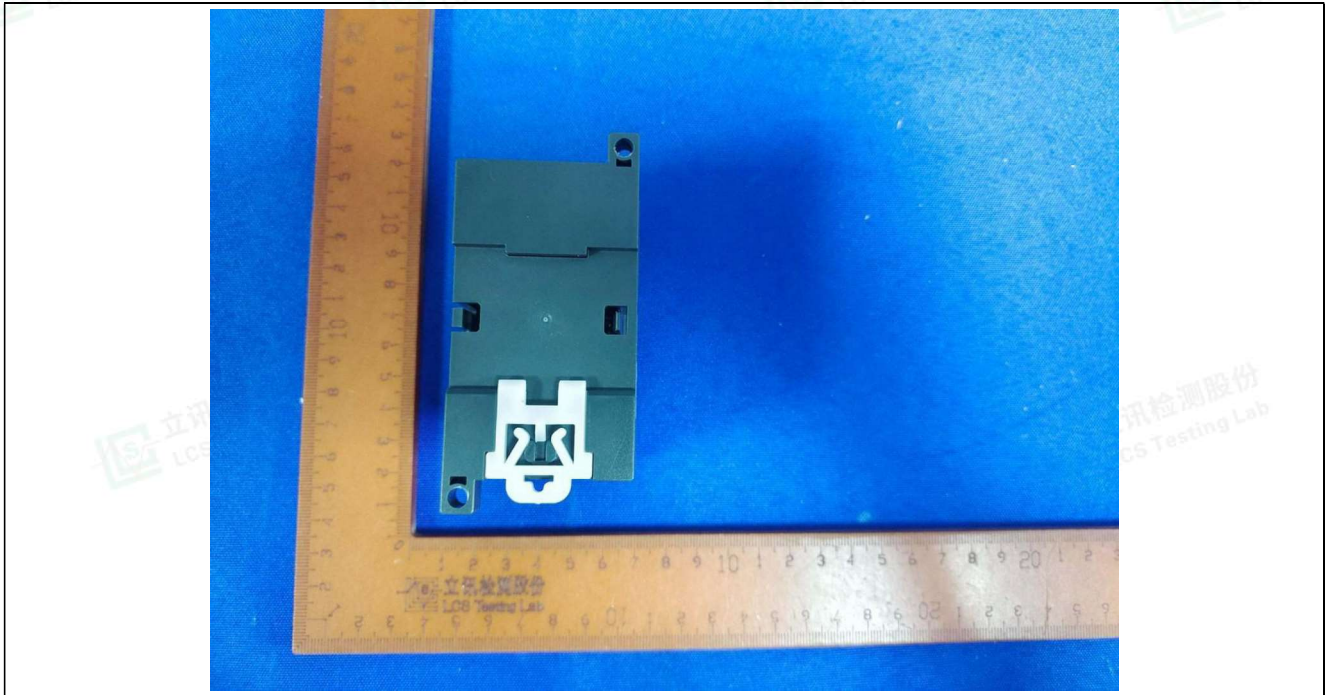
RF electromagnetic field disturbances

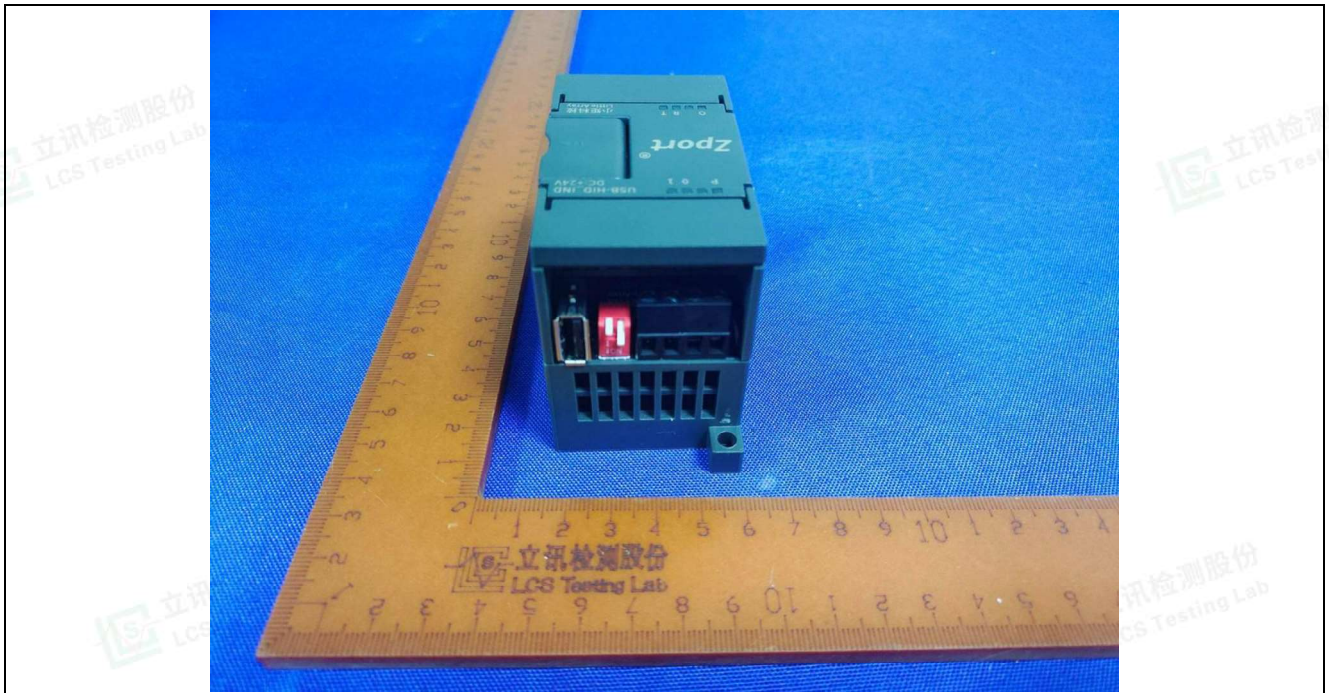
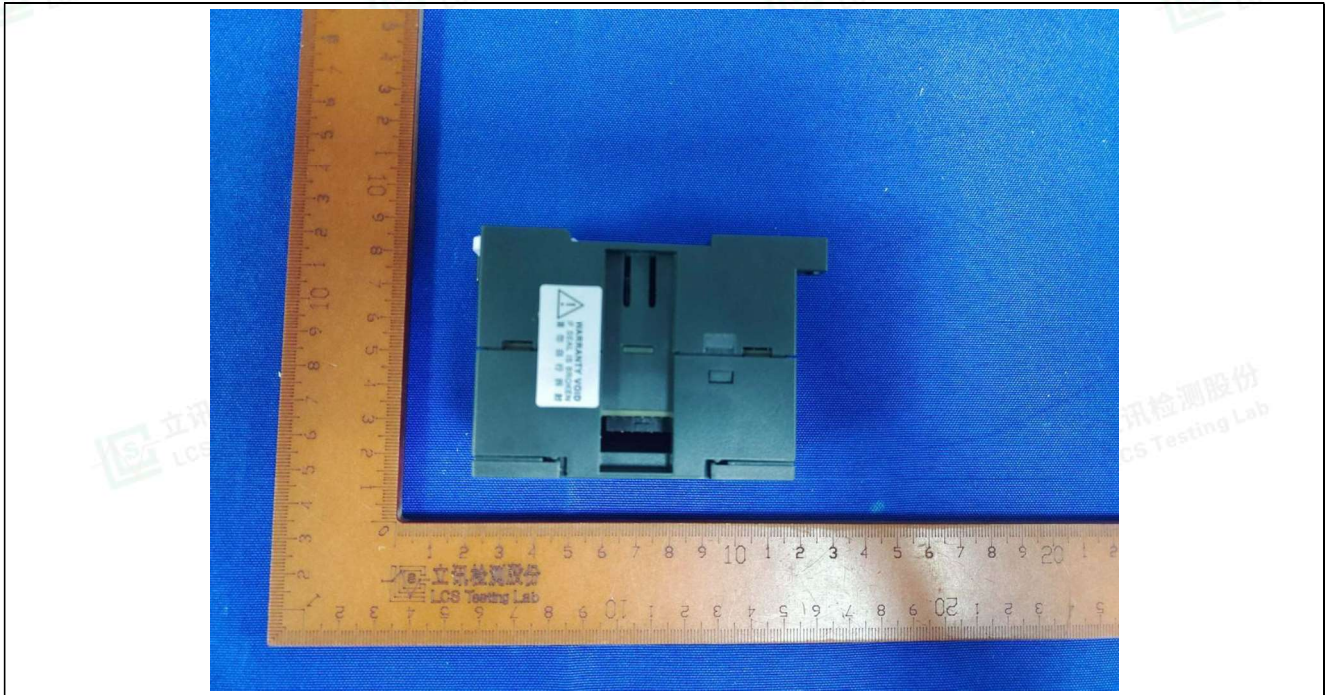


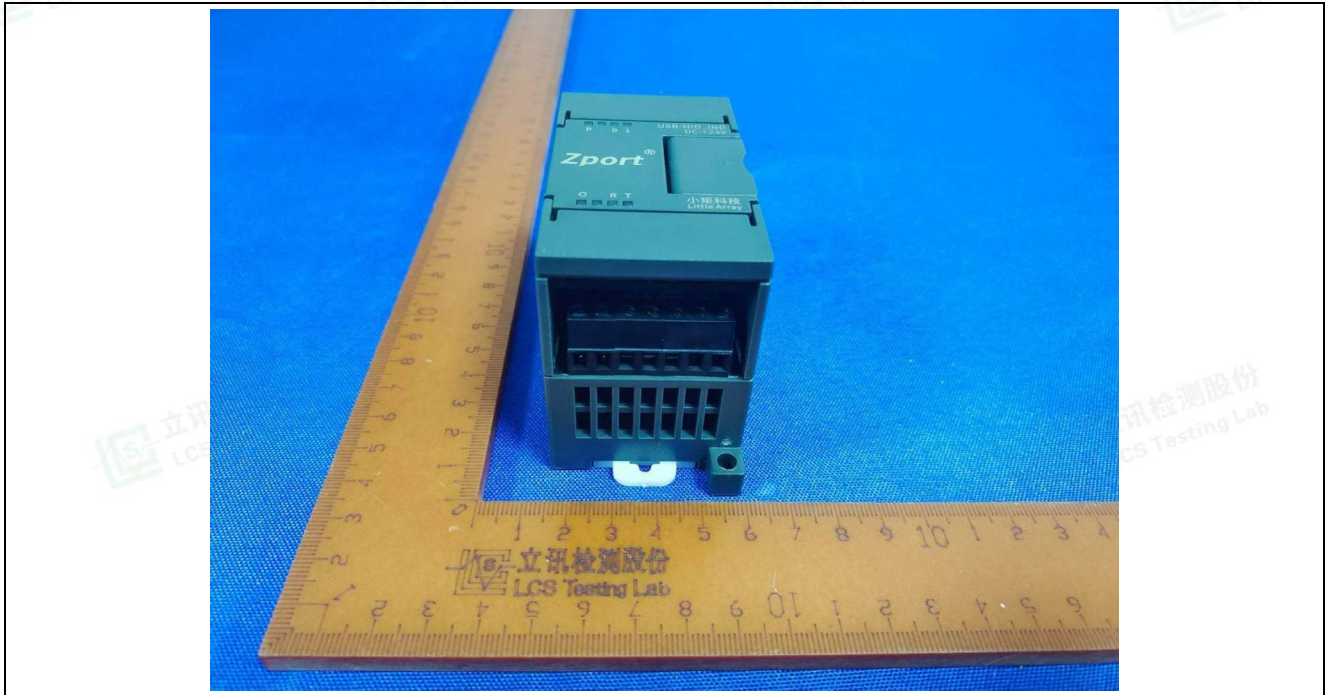


8. EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)









--- End of Report ---





Verification Report

Report No. A2220386566101

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CENTRE TESTING INTERNATIONAL



**Company Name
shown on Report
Address**

LITTLE ARRAY TECHNOLOGY (SHENZHEN) CO., LTD.

215, BUILDING A1, FUHAI B2, FUYONG COMMUNITY, FUYONG STREET, BAOAN DISTRICT, SHENZHEN



Conclusion

Tested Sample	According to standard/directive	Result
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment(EU) 2015/863.

Tested by Yu Liu

Reviewed by Helen Liu



Approved by Anso Fang
Anso Fang
Lab Authorized Signatory

Date Sep. 28, 2022

No. R228411845

Centre Testing International Group Co.,Ltd.
CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

Verification Report

Report No. A2220386566101

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Verification Report

Report No. A2220386566101

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The following sample(s) and sample information was/were submitted and identified by/on the behalf of
The applicant

Product Sample Name USB HID To Serial Data Converter Module

Product Part No. Zport Series USB-HID_IND

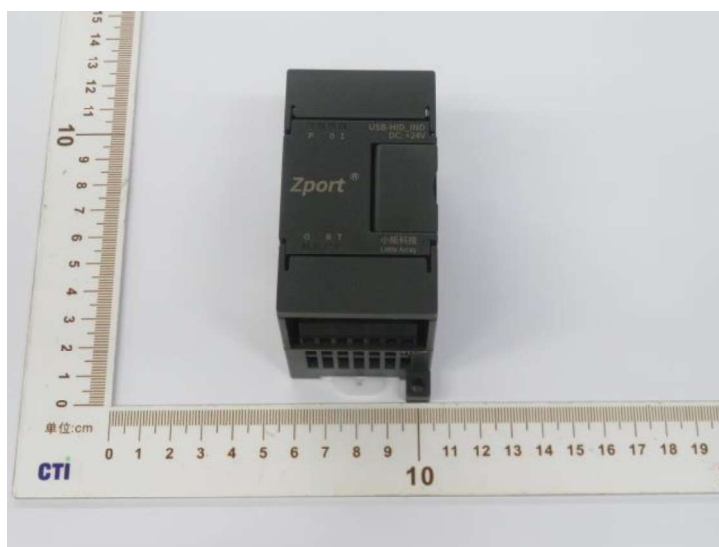
Sample Received Date Sep. 1, 2022

Testing Period Sep. 1, 2022 to Sep. 28, 2022

Test Requested With reference to RoHS Directive 2011/65/EU with amendment (EU) 2015/863, to conduct verification test for Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) and Phthalates (Dibutyl phthalate(DBP), Benzylbutyl phthalate(BBP), Di-2-ethylhexyl phthalate(DEHP), Diisobutyl phthalate(DIBP)) in the submitted samples.

Photo(s) of the Product(s)

USB HID To Serial Data Converter Module



Verification Report

Report No. A2220386566101

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Test Method

A. Screening limits for regulated elements according to IEC 62321-3-1:2013 (Unit: mg/kg)

Element	Polymers	Metals	Composite material
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	N/A	$BL \leq (250-3\sigma) < X$

B. Mixed test limits for Phthalates

Test Item(s)	Mixed test limits(Unit: mg/kg)
Dibutyl phthalate(DBP)	$X \geq (1000-U_{95})/N$
Benzylbutyl phthalate(BBP)	$X \geq (1000-U_{95})/N$
Di-2-ethylhexyl phthalate(DEHP)	$X \geq (1000-U_{95})/N$
Diisobutyl phthalate(DIBP)	$X \geq (1000-U_{95})/N$

C. Chemical Test

Tested Item(s)	Test Method	Measured Equipment(s)	MDL	Limit
Lead (Pb)	IEC 62321-5:2013	ICP-OES	10 mg/kg	1000 mg/kg
	Refer to IEC 62321-5:2013		10 mg/kg	
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	10 mg/kg	100 mg/kg
	Refer to IEC 62321-5:2013		10 mg/kg	
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES	10 mg/kg	1000 mg/kg
	Refer to IEC 62321-4:2013+AMD1:2017 CSV		10 mg/kg	
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017	UV-Vis	20 mg/kg	1000 mg/kg
	IEC 62321-7-1:2015		0.10 $\mu\text{g}/\text{cm}^2$ (LOQ)	
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	100 mg/kg	1000 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	100 mg/kg	1000 mg/kg
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS	50 mg/kg	1000 mg/kg for each

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Remark:

- BL = Under the XRF screening limit
- OL = Above the screening limit
- X = The range of needing to do further testing
- 3σ = The reproducibility of analytical instruments
- N/A = Not applicable
- LOD = Detection limit
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is $0.10 \mu\text{g}/\text{cm}^2$
- U_{95} = The uncertainty of the test item is 95%
- N = Sample number of mixed test

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Test Result(s)

Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
001	002, 003, 004	Deep gray plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
005	/	White plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
006	/	Silvery label with black printing	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
007	/	Transparent plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
008	/	Gray-black inductance(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
009	/	Silvery metal with black printing	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
010	/	Beige paper	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
011	/	Gray metal foil		BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
012	/	Silver-gray metal foil	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
013	/	Black rubber	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
014	/	Black plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
015	/	Silvery metal pin	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
016	/	Black body(Tested as a whole)	Pb	OL	5036 ^{#1}	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
017	/	IC(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
018	/	Black plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		
019	/	Silvery/golden metal	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
020	/	Green fuse(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
021	/	Yellow capacitance(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
022	/	Black diode(Tested as a whole)	Pb	OL	9945 ^{#1}	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
023	/	Black diode(Tested as a whole)	Pb	OL	6427 ^{#1}	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
024	/	IC(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
025	/	IC(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
026	/	Crystal oscillator(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	IN	N.D.		
			Br(PBBs&PBDEs)	BL	/		
027	/	IC(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
028	/	IC(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
029	/	IC(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
030	/	Brown capacitance(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
031	/	White label with black printing	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
032	/	PCB(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		
033	/	Black plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
034	/	Light golden metal	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
035	/	Black plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
036	/	Metal with silver-blue plating	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	IN	N.D. ▼		
			Br(PBBs&PBDEs)	N/A	/		
037	/	Metal with silvery plating	Pb	OL	18853 ^{#2}	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
038	/	Silvery metal pin	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
039	/	Silvery metal	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
040	/	Silvery metal	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
041	/	Black plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
042	/	Silvery/golden metal	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
043	/	Red plastic with white printing	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		
044	/	White plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		
045	/	Black plastic	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		

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Sample No.	Same material No.	Sample Description	Tested Item(s)	XRF Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
046	/	Golden metal	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
047	/	Blue capacitance(Test ed as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
048	/	Pink body(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	BL	/		
049	/	Silvery metal pin	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
050	/	Silvery metal solder	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	N/A	/		
051	/	PCB(Tested as a whole)	Pb	BL	/	PASS	Sep. 1, 2022
			Cd	BL	/		
			Hg	BL	/		
			Cr(Cr(VI))	BL	/		
			Br(PBBs&PBDEs)	IN	N.D.		

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Test results of Phthalates

Sample No.	Sample Description	Tested Item(s)	Test Result (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
001	Deep gray plastic	DBP	N.D.	PASS	Sep. 1, 2022
		BBP	N.D.	PASS	
		DEHP	N.D.	PASS	
		DIBP	N.D.	PASS	
005+006+007	White plastic+Silvery label with black printing+Transparent plastic	DBP	N.D.	PASS [▲]	Sep. 1, 2022
		BBP	N.D.	PASS [▲]	
		DEHP	N.D.	PASS [▲]	
		DIBP	N.D.	PASS [▲]	
008+016+017	Gray-black inductance(Tested as a whole)+Black body(Tested as a whole)+IC(Tested as a whole)	DBP	N.D.	PASS [▲]	Sep. 1, 2022
		BBP	N.D.	PASS [▲]	
		DEHP	N.D.	PASS [▲]	
		DIBP	N.D.	PASS [▲]	
010+013+014	Beige paper+Black rubber+Black plastic	DBP	N.D.	PASS [▲]	Sep. 1, 2022
		BBP	N.D.	PASS [▲]	
		DEHP	N.D.	PASS [▲]	
		DIBP	N.D.	PASS [▲]	
018+031+033	Black plastic+White label with black printing+Black plastic	DBP	N.D.	PASS [▲]	Sep. 1, 2022
		BBP	N.D.	PASS [▲]	
		DEHP	N.D.	PASS [▲]	
		DIBP	N.D.	PASS [▲]	

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Sample No.	Sample Description	Tested Item(s)	Test Result (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
020+021+022	Green fuse(Tested as a whole)+Yellow capacitance(Tested as a whole)+Black diode(Tested as a whole)	DBP	N.D.	PASS▲	Sep. 1, 2022
		BBP	N.D.	PASS▲	
		DEHP	N.D.	PASS▲	
		DIBP	N.D.	PASS▲	
023+024+025	Black diode(Tested as a whole)+IC(Tested as a whole)+IC(Tested as a whole)	DBP	N.D.	PASS▲	Sep. 1, 2022
		BBP	N.D.	PASS▲	
		DEHP	N.D.	PASS▲	
		DIBP	N.D.	PASS▲	
026+027+028	Crystal oscillator(Tested as a whole)+IC(Tested as a whole)+IC(Tested as a whole)	DBP	N.D.	PASS▲	Sep. 1, 2022
		BBP	N.D.	PASS▲	
		DEHP	N.D.	PASS▲	
		DIBP	N.D.	PASS▲	
029+030+032	IC(Tested as a whole)+Brown capacitance(Tested as a whole)+PCB(Tested as a whole)	DBP	N.D.	PASS▲	Sep. 1, 2022
		BBP	N.D.	PASS▲	
		DEHP	N.D.	PASS▲	
		DIBP	N.D.	PASS▲	
035+041+043	Black plastic+Black plastic+Red plastic with white printing	DBP	N.D.	PASS▲	Sep. 1, 2022
		BBP	N.D.	PASS▲	
		DEHP	N.D.	PASS▲	
		DIBP	N.D.	PASS▲	

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Sample No.	Sample Description	Tested Item(s)	Test Result (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
044+045	White plastic+Black plastic	DBP	N.D.	PASS [▲]	Sep. 1, 2022
		BBP	N.D.	PASS [▲]	
		DEHP	N.D.	PASS [▲]	
		DIBP	N.D.	PASS [▲]	
047+048+051	Blue capacitance(Tested as a whole)+Pink body(Tested as a whole)+PCB(Tested as a whole)	DBP	N.D.	PASS [▲]	Sep. 1, 2022
		BBP	N.D.	PASS [▲]	
		DEHP	N.D.	PASS [▲]	
		DIBP	N.D.	PASS [▲]	

-[▲]As specified by client, the test of Phthalates (Dibutyl phthalate(DBP), Benzylbutyl phthalate(BBP), Di-2-ethylhexyl phthalate(DEHP), Diisobutyl phthalate(DIBP)) was conducted by mixing several samples together. The result(s) shown on this report may be different from the content of any homogeneous material.

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Remark:

- N.D. = Not Detected (<MDL or LOQ)
- MDL = Method Detection Limit
- mg/kg = ppm = parts per million
- 1000 mg/kg = 0.1%
- /=Not tested
- N/A= Not applicable
- IN= Uncertain, Further chemical test
- BL = Under the screening limit
- OL = Further chemical test will be conducted while the result is above the screening limit.
- When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
▼The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10µg/cm².
The coating is considered a non-Cr(VI) based coating.
- #1 According to the client's statement, the material of the sample(s) fall into exemption items 7(a) according to EU Directive 2011/65/EU: Lead in high melting temperature type solders(i.e. lead-based alloys containing 85% by weight of more lead).
- #2 According to the client's statement, the material of the sample(s) fall into exemption items 6(c) according to EU Directive 2011/65/EU: Copper alloy containing up to 4%(40000 mg/kg) lead by weight. According to the client's statement, the samples in the column "Same material No." are of the same as the "Sample No."

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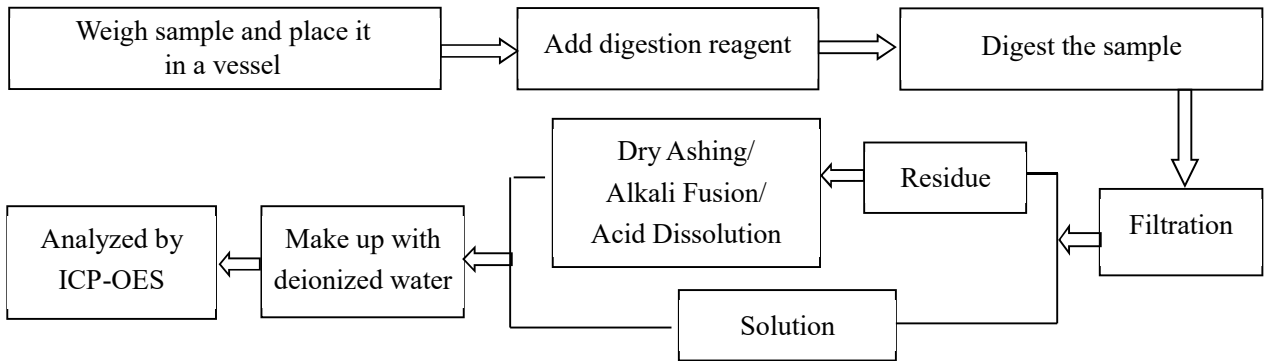
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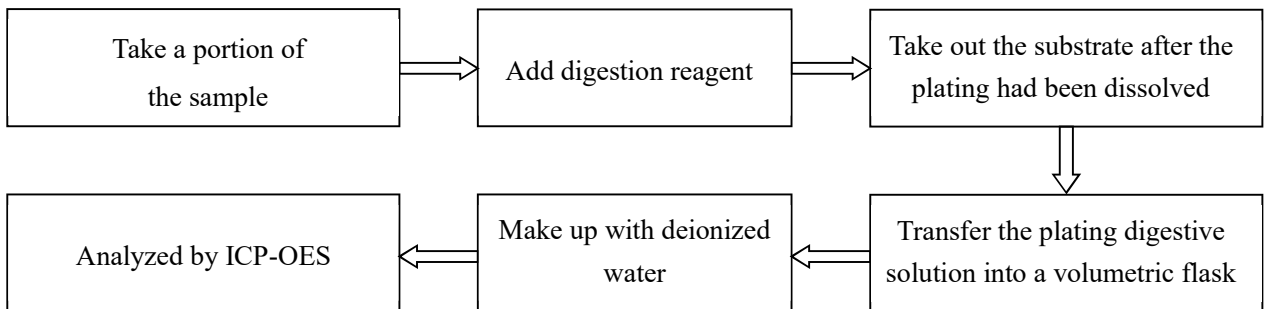
Test Process

1. Lead (Pb), Cadmium (Cd)

(1) IEC 62321-5:2013

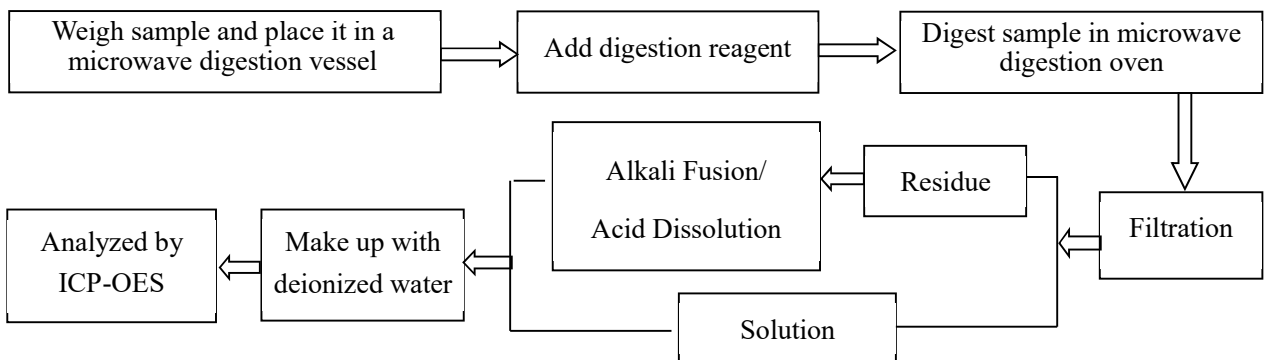


(2) Refer to IEC 62321-5:2013

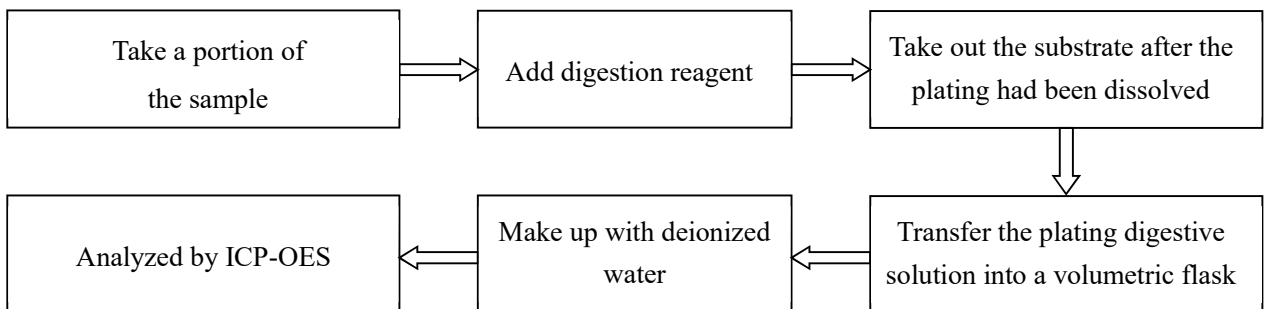


2. Mercury (Hg)

(1) IEC 62321-4:2013+AMD1:2017 CSV



(2) Refer to IEC 62321-4:2013+AMD1:2017 CSV



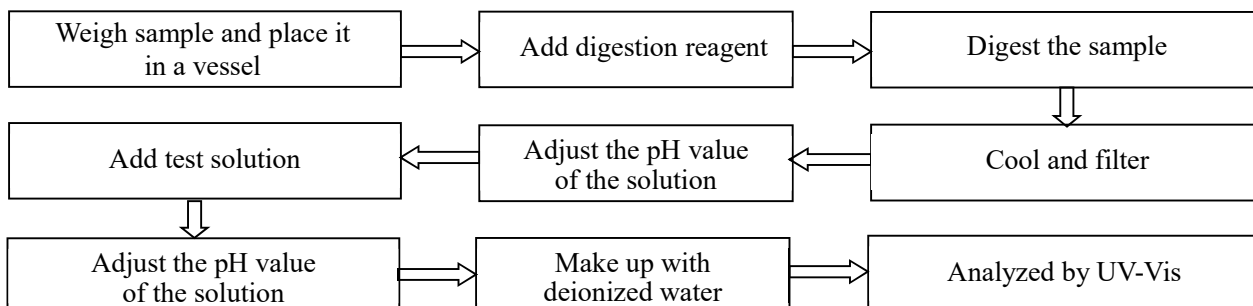
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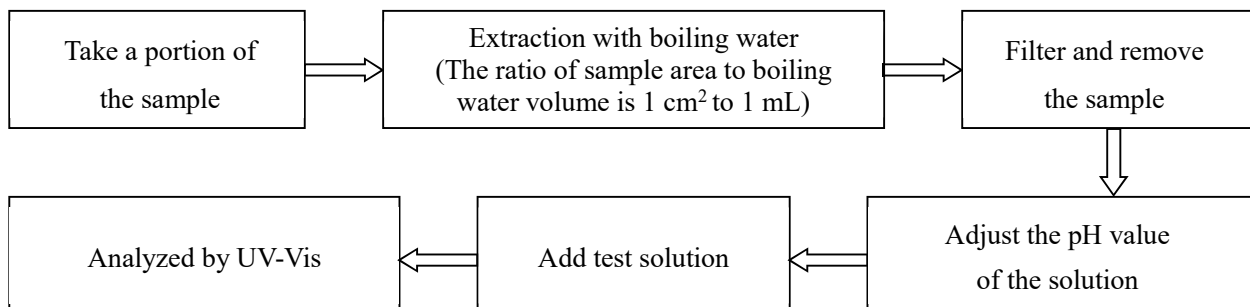
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3. Hexavalent Chromium (Cr(VI))

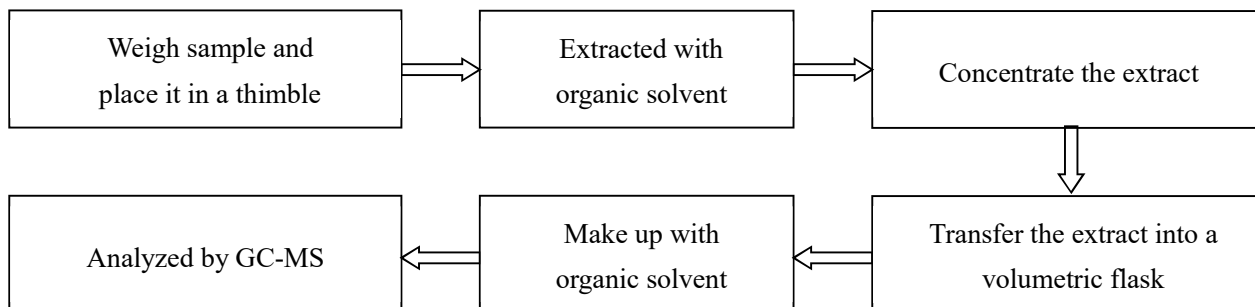
(1) IEC62321-7-2:2017



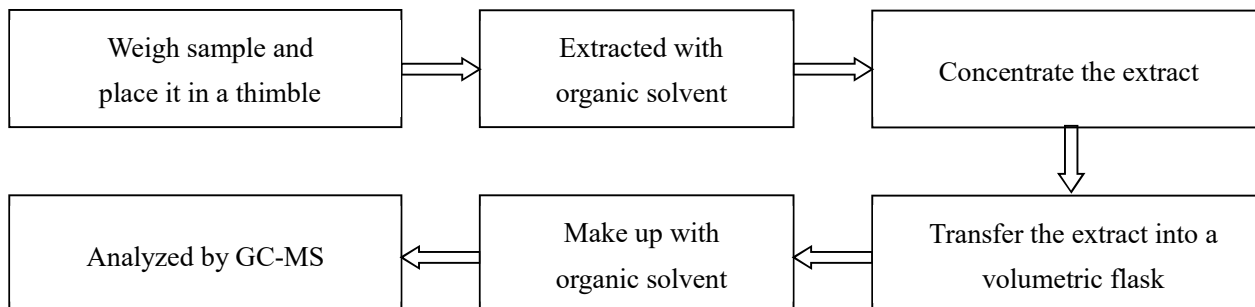
(2) IEC 62321-7-1:2015



4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs)



5. Phthalates(DBP, BBP, DEHP, DIBP)

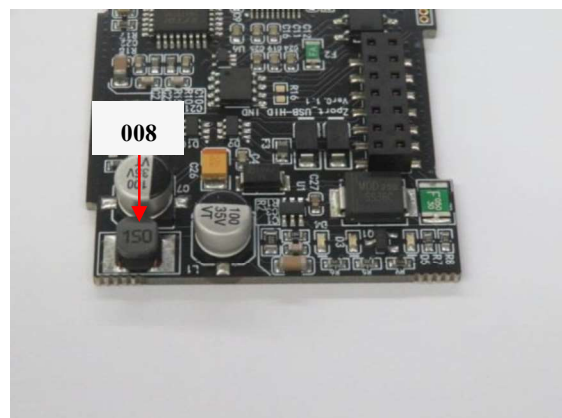
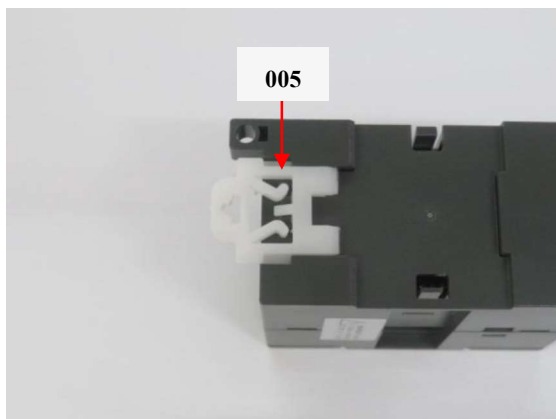
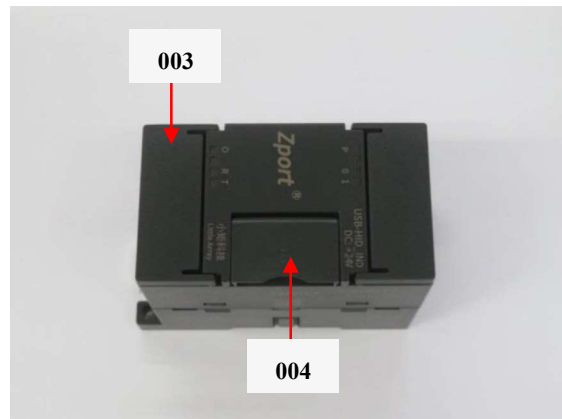
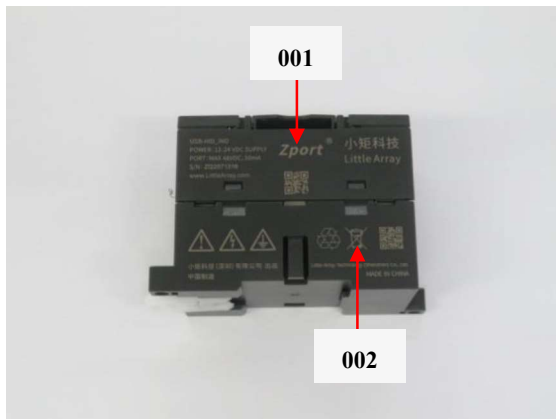


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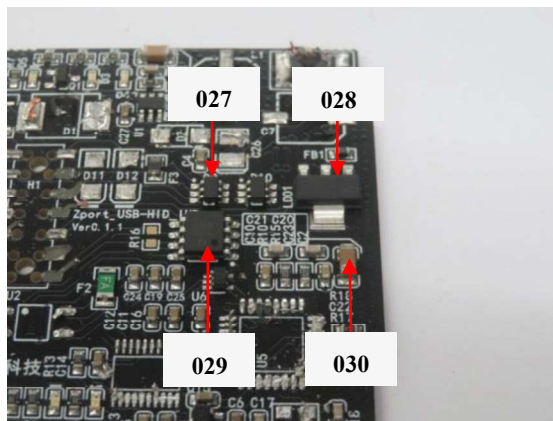
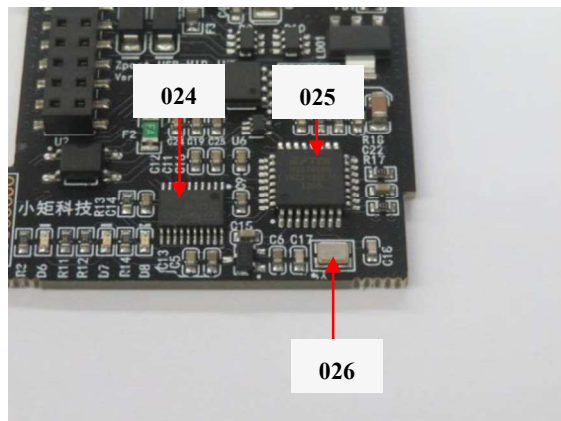
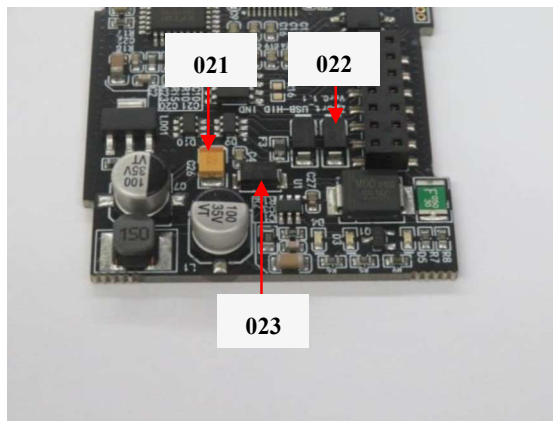
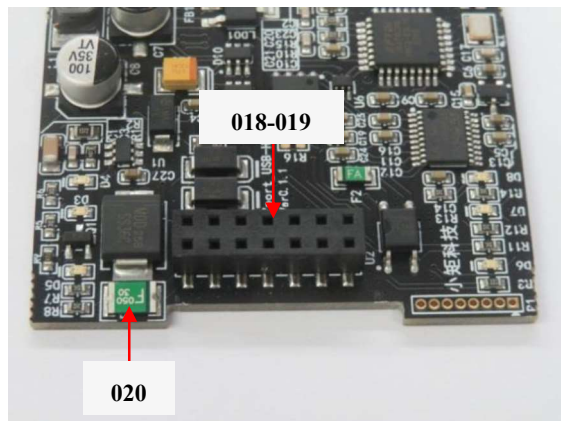
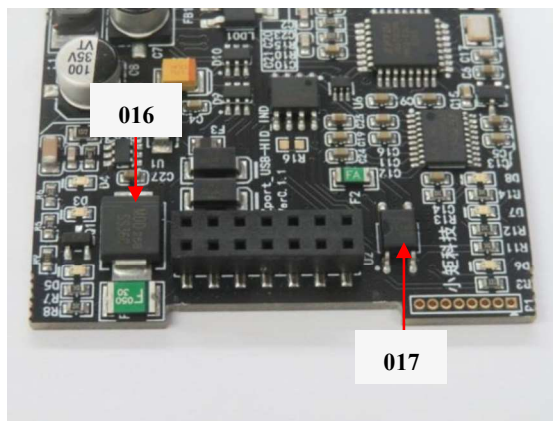
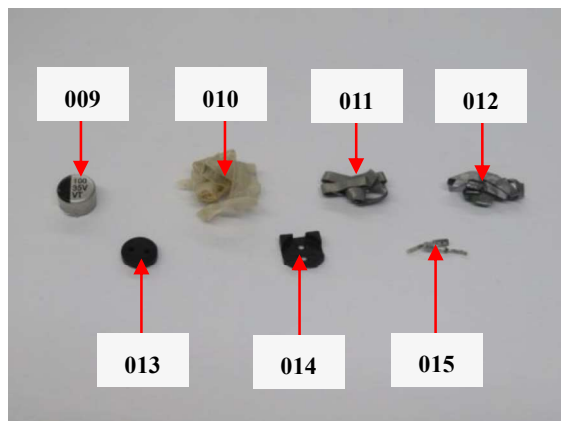
Photo(s) of the tested component(s)



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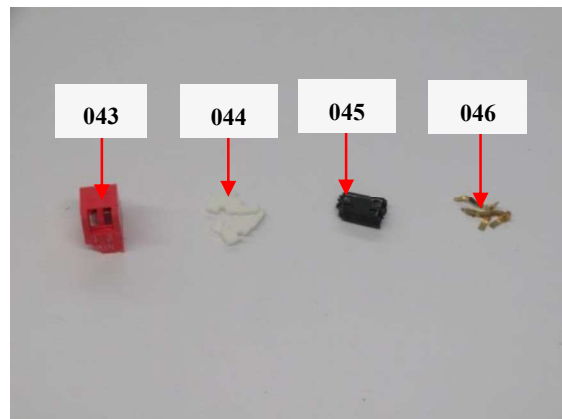
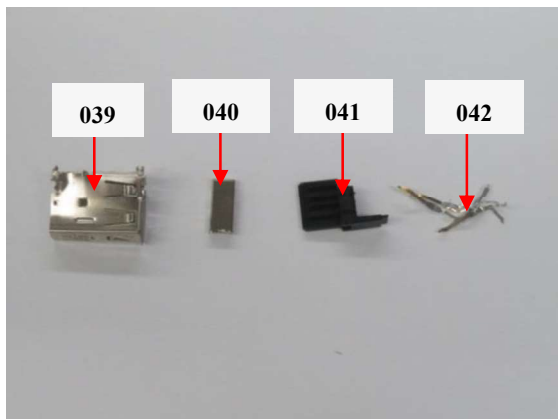
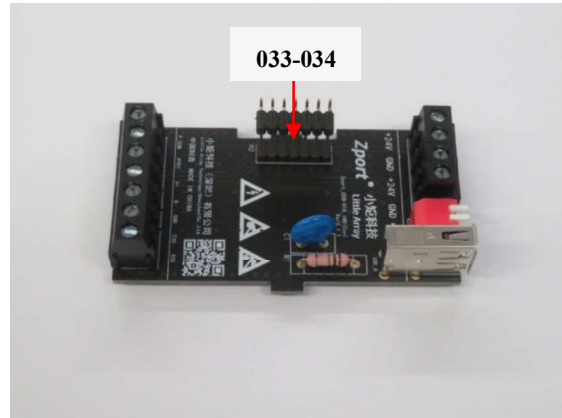
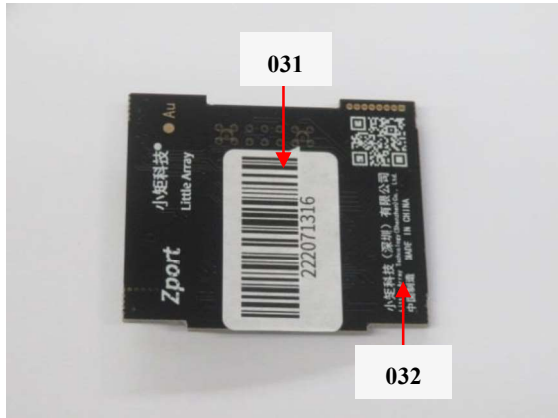
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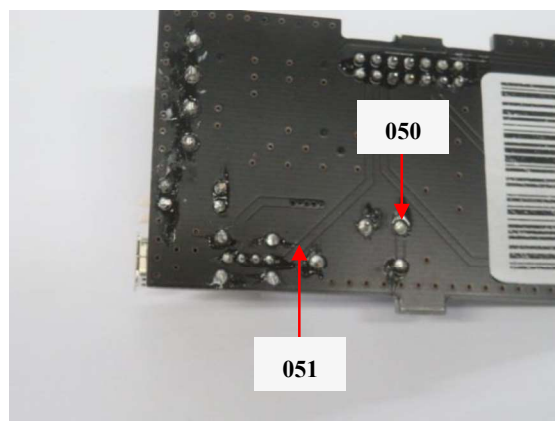
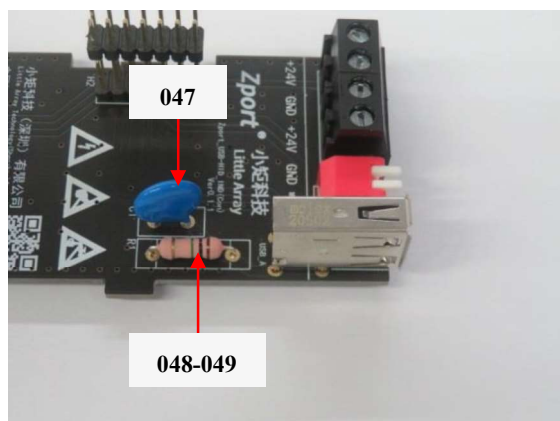
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Exempted Items of RoHS Directive

In accordance with Directive 2011/65/EU as amended, there are 45 exemption items in Annex III of 2011/65/EU altogether.

	Exemption	Scope and dates of applicability
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1(a)	For general lighting purposes < 30 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011 until 31 December 2012; 2,5 mg shall be used per burner after 31 December 2012
1(b)	For general lighting purposes \geq 30 W and < 50 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011
1(c)	For general lighting purposes \geq 50 W and < 150 W: 5 mg	
1(d)	For general lighting purposes \geq 150 W: 15 mg	
1(e)	For general lighting purposes with circular or square structural shape and tube diameter \leq 17 mm	No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011
1(f)	For special purposes: 5 mg	
1(g)	For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg	Expires on 31 December 2017
2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	
2(a)(1)	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg	Expires on 31 December 2011; 4 mg may be used per lamp after 31 December 2011
2(a)(2)	Tri-band phosphor with normal lifetime and a tube diameter \geq 9 mm and \leq 17 mm (e.g. T5): 5 mg	Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011
2(a)(3)	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and \leq 28 mm (e.g. T8): 5 mg	Expires on 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
2(a)(4)	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg	Expires on 31 December 2012; 3,5 mg may be used per lamp after 31 December 2012
2(a)(5)	Tri-band phosphor with long lifetime (\geq 25 000 h): 8 mg	Expires on 31 December 2011; 5 mg may be used per lamp after 31 December 2011
2(b)	Mercury in other fluorescent lamps not exceeding (per lamp):	

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	Exemption	Scope and dates of applicability
2(b)(1)	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	Expires on 13 April 2012
2(b)(2)	Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)(3)	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
2(b)(4)	Lamps for other general lighting and special purposes (e.g. induction lamps)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):	
3(a)	Short length (≤ 500 mm)	No limitation of use until 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
3(b)	Medium length (> 500 mm and $\leq 1\ 500$ mm)	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011
3(c)	Long length ($> 1\ 500$ mm)	No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011
4(a)	Mercury in other low pressure discharge lamps (per lamp)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
4(b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index $R_a > 60$:	
4(b)-I	$P \leq 155$ W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(b)-II	155 W $< P \leq 405$ W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(b)-III	$P > 405$ W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011

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	Exemption	Scope and dates of applicability
4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	
4(c)-I	$P \leq 155 \text{ W}$	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011
4(c)-II	$155 \text{ W} < P \leq 405 \text{ W}$	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(c)-III	$P > 405 \text{ W}$	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4(e)	Mercury in metal halide lamps (MH)	
4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	
4(g)	Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair + 0,3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 °C; (b) 15 mg per electrode pair + 0,24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.	Expires on 31 December 2018
5(a)	Lead in glass of cathode ray tubes	
5(b)	Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	

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	Exemption	Scope and dates of applicability
6(a)	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	Expires on: -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
6(a)-I	Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0,2 % lead by weight	Expires on 21 July 2021 for categories 1-7 and 10.
6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	Expires on: -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, -21 July 2023 for category 8 in vitro diagnostic medical devices, -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
6(b)-I	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling	Expires on 21 July 2021 for categories 1-7 and 10.
6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight	Expires on 18 May 2021 for categories 1-7 and 10.

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	Exemption	Scope and dates of applicability
6(c)	Copper alloy containing up to 4 % lead by weight	Expires on: -21 July 2021 for categories 1-7 and 10, -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, -21 July 2023 for category 8 in vitro diagnostic medical devices, -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	Applies to categories 1-7 and 10 (except applications covered by point 24 of this Annex) and expires on 21 July 2021. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
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	Applies to categories 1-7 and 10 (except applications covered under point 34) and expires on 21 July 2021. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments expires on 21 July 2021. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.

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	Exemption	Scope and dates of applicability
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	Does not apply to applications covered by point 7(c)-I and 7(c)-IV of this Annex. Expires on: -21 July 2021 for categories 1-7 and 10; -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors which are part of integrated circuits or discrete semiconductors	-21 July 2021 for categories 1-7 and 10; -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8(b)	Cadmium and its compounds in electrical contacts	Applies to categories 8, 9 and 11 and expires on: -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11

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	Exemption	Scope and dates of applicability
8(b)-I	<p>Cadmium and its compounds in electrical contacts used in:</p> <ul style="list-style-type: none"> -circuit breakers, -thermal sensing controls, -thermal motor protectors (excluding hermetic thermal motor protectors), -AC switches rated at: <ul style="list-style-type: none"> -6 A and more at 250 V AC and more, or -12 A and more at 125 V AC and more, -DC switches rated at 20 A and more at 18 V DC and more, and -switches for use at voltage supply frequency \geq 200 Hz 	<p>Applies to categories 1 to 7 and 10 and expires on 21 July 2021</p>
9	<p>Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution</p>	<p>Applies to categories 8, 9 and 11 and expires on:</p> <ul style="list-style-type: none"> —21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, —21 July 2023 for category 8 in vitro diagnostic medical devices, —21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
9(a)-I	<p>Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators (including minibars) designed to operate fully or partly with electrical heater, having an average utilised power input < 75 W at constant running conditions</p>	<p>Applies to categories 1-7 and 10 and expires on 5 March 2021.</p>

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	Exemption	Scope and dates of applicability
9(a)-II	Up to 0,75 % hexavalent chromium by weight, used as an anticorrosion agent in the cooling solution of carbon steel cooling systems of absorption refrigerators: —designed to operate fully or partly with electrical heater, having an average utilised power input ≥ 75 W at constant running conditions, —designed to fully operate with non-electrical heater.	Applies to categories 1-7 and 10 and expires on 21 July 2021.
9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	Applies to categories 8, 9 and 11; expires on: -21 July 2023 for category 8 in vitro diagnostic medical devices, -21 July 2024 for category 9 industrial monitoring and control instruments and for category 11, -21 July 2021 for other subcategories of categories 8 and 9.
9(b)-(I)	Lead in bearing shells and bushes for refrigerant-containing hermetic scroll compressors with a stated electrical power input equal or below 9 kW for heating, ventilation, air conditioning and refrigeration (HVACR) applications	Applies to category 1; expires on 21 July 2019.
11(a)	Lead used in C-press compliant pin connector systems C-press	May be used in spare parts for EEE placed on the market before 24 September 2010
11(b)	Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
12	Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13(a)	Lead in white glasses used for optical applications	Applies to all categories; expires on: -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; -21 July 2021 for all other categories and subcategories

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	Exemption	Scope and dates of applicability
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	Applies to categories 8, 9 and 11; expires on: -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments and for category 11; -21 July 2021 for other subcategories of categories 8 and 9
13(b)-I	Lead in ion coloured optical filter glass types	Applies to categories 1 to 7 and 10; expires on 21 July 2021 for categories 1 to 7 and 10
13(b)-II	Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex	
13(b)-III	Cadmium and lead in glazes used for reflectance standards	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	Expired on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	Applies to categories 8, 9 and 11 and expires on: -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11

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	Exemption	Scope and dates of applicability
15(a)	Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies: -a semiconductor technology node of 90 nm or larger; -a single die of 300 mm ² or larger in any semiconductor technology node; -stacked die packages with die of 300 mm ² or larger, or silicon interposers of 300 mm ² or larger	Applies to categories 1 to 7 and 10 and expires on 21 July 2021
16	Lead in linear incandescent lamps with silicate coated tubes	Expires on 1 September 2013
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	
18(a)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)2MgSi2O7:Pb)	Expired on 1 January 2011
18(b)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi2O5:Pb)	-21 July 2021 for categories 1-7 and 10; -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
18(b)-I	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps containing phosphors such as BSP (BaSi2O5:Pb) when used in medical phototherapy equipment	Applies to categories 5 and 8, excluding applications covered by entry 34 of Annex IV, and expires on 21 July 2021
19	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact energy saving lamps (ESL)	Expires on 1 June 2011

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	Exemption	Scope and dates of applicability
20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	Expires on 1 June 2011
21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	Applies to categories 8, 9 and 11 and expires on: -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
21(a)	Cadmium when used in colour printed glass to provide filtering functions, used as a component in lighting applications installed in displays and control panels of EEE	Applies to categories 1 to 7 and 10 except applications covered by entry 21(b) or entry 39 and expires on 21 July 2021
21(b)	Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	Applies to categories 1 to 7 and 10 except applications covered by entry 21(a) or 39 and expires on 21 July 2021
21(c)	Lead in printing inks for the application of enamels on other than borosilicate glasses	Applies to categories 1 to 7 and 10 and expires on 21 July 2021
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less	May be used in spare parts for EEE placed on the market before 24 September 2010
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	Expires on: -21 July 2021 for categories 1-7 and 10, -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, -21 July 2023 for category 8 in vitro diagnostic medical devices, -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
25	Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26	Lead oxide in the glass envelope of black light blue lamps	Expires on 1 June 2011

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	Exemption	Scope and dates of applicability
27	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers	Expired on 24 September 2010
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC	-21 July 2021 for categories 1-7 and 10; -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	
31	Lead in soldering materials in mercury free flat fluorescent lamps (which, e.g. are used for liquid crystal displays, design or industrial lighting)	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	-21 July 2021 for categories 1-7 and 10, -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, -21 July 2023 for category 8 in vitro diagnostic medical devices, -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
33	Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	

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	Exemption	Scope and dates of applicability
34	Lead in cermet-based trimmer potentiometer elements	Applies to all categories; expires on: -21 July 2021 for categories 1-7 and 10, -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, -21 July 2023 for category 8 in vitro diagnostic medical devices, -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expired on 1 July 2010
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	-21 July 2021 for categories 1-7 and 10; -21 July 2021 for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; -21 July 2023 for category 8 in vitro diagnostic medical devices; -21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
39(a)	Cadmium selenide in downshifting cadmium-based semiconductor nanocrystal quantum dots for use in display lighting applications (< 0,2 µg Cd per mm ² of display screen area)	-Expires for all categories on 31 October 2019
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013

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	Exemption	Scope and dates of applicability
41	<p>Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council (2))</p>	<p>Expires on 31 December 2018</p>
42	<p>Lead in bearings and bushes of diesel or gaseous fuel powered internal combustion engines applied in non-road professional use equipment: -with engine total displacement \geq 15 litres; or -with engine total displacement < 15 litres and the engine is designed to operate in applications where the time between signal to start and full load is required to be less than 10 seconds; or regular maintenance is typically performed in a harsh and dirty outdoor environment, such as mining, construction, and agriculture applications</p>	<p>Applies to category 11, excluding applications covered by entry 6(c) of this Annex. Expires on 21 July 2024</p>
43	<p>Bis(2-ethylhexyl) phthalate in rubber components in engine systems, designed for use in equipment that is not intended solely for consumer use and provided that no plasticised material comes into contact with human mucous membranes or into prolonged contact with human skin and the concentration value of bis(2-ethylhexyl) phthalate does not exceed: (a)30 % by weight of the rubber for (i)gasket coatings; (ii)solid-rubber gaskets; or (iii)rubber components included in assemblies of at least three components using electrical, mechanical or hydraulic energy to do work, and attached to the engine. (b)10 % by weight of the rubber for rubber-containing components not referred to in point (a). For the purposes of this entry, “prolonged contact with human skin” means continuous contact of more than 10 minutes duration or intermittent contact over a period of 30 minutes, per day.</p>	<p>Applies to category 11 and expires on 21 July 2024.</p>

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	Exemption	Scope and dates of applicability
44	Lead in solder of sensors, actuators, and engine control units of combustion engines within the scope of Regulation (EU) 2016/1628 of the European Parliament and of the Council (*1), installed in equipment used at fixed positions while in operation which is designed for professionals, but also used by non-professional users	Applies to category 11 and expires on 21 July 2024.
45	Lead diazide, lead styphnate, lead dipicramate, orange lead (lead tetroxide), lead dioxide in electric and electronic initiators of explosives for civil (professional) use and barium chromate in long time pyrotechnic delay charges of electric initiators of explosives for civil (professional) use	Applies to category 11 and expires on 20 April 2026.

Statement:

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2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
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*** End of Report ***

