



Report No. HTT202501077CH

RoHS Test Report

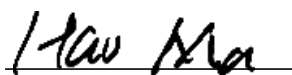
Application information:

Applicant name:	SOL-EXPERT Group
Address:	Mehlisstrasse 19 D-88255 Baidnt
Manufacturer:	Apolo Electronics Company Limited
Address:	Room 8,17/F,Block A, Veristrong industrial Centre, 34-36 Au Pui Wan Street,Shatin,N.T. HK

Sample information:

Sample Name:	Bluetooth module (DW-CT14+)
Sample Model:	DW-CT14+
Trade mark:	
Sample Received Date:	Jan. 02, 2025
Testing Period:	Jan. 02, 2025 ~ Jan. 08, 2025
Test Requested:	As specified by client, to determine the Lead, Cadmium, Mercury,Hexavalent Chromium, PBBs, PBDEs, The Phthalate(DEHP, BBP, DBP & DIBP) content in the submitted sample compliance with RoHS directive 2011/65/EU Annex II amending Annex (EU)2015/863 and amending Annex (EU)2017/2102.
Test Method:	Please refer to next page.
Test Results	Please refer to next page(s).
Conclusion:	Please refer to next page(s).

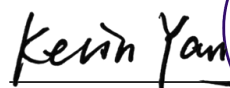
Completed by:



Reviewed by:



Approved by:



Technical Manager



Shenzhen HTT Technology Co., Ltd.



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1. Test Method(s):

As requested by the client, Reference to IEC 62321-3-1:2013 (Ed1.0) Procedures for the screening analysis of Lead (Pb), Cadmium (Cd), Mercury (Hg), total Chromium (Cr), and Bromine (Br) by XRF. If the screening analysis results exceed the screening limits of IEC 62321-3-1:2013 (Ed1.0) Annex A, use the chemical methods for testing.

Table1 IEC 62321-3-1:2013 (Ed1.0) Annex A screening limits of XRF (mg/kg)

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

BL = Less than screening limits of XRF

OL = More than screening limits of XRF

X = The results of screening analysis by XRF are within this range, requiring further chemical testing.

LOD = Limit of Detection

Table2 testing methods & Equipments

Testing Item	Testing Method	Equipment
Screening analysis by XRF		
Lead (Pb), Cadmium (Cd), Mercury (Hg) Chromium (Cr), Bromine (Br)	IEC 62321-3-1:2013	ED-XRF
Chemical testing		
Lead (Pb)	IEC 62321-5:2013	ICP-OES
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+A1:2017	ICP-OES
Hexavalent chromium (Cr(VI)) for plastic	IEC 62321-7-2:2017	UV-VIS
Hexavalent chromium (Cr(VI)) for coating on metals	IEC 62321-7-1:2015	UV-VIS
PBBs	IEC 62321-6:2015	GC-MS
PBDEs	IEC 62321-6:2015	GC-MS
DBP	IEC 62321-8:2017	GC-MS
BBP	IEC 62321-8:2017	GC-MS
DEHP	IEC 62321-8:2017	GC-MS
DIBP	IEC 62321-8:2017	GC-MS



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2. Method Detection Limit (MDL):

For XRF screening analysis (mg/kg)

Item	Pb	Cd	Hg	Br	Cr
Polymer	20	20	20	20	20
Other materials	50	50	50	50	50

For chemical testing (mg/kg)

Item	Pb	Cd	Hg	PBBs	PBDEs	DEHP	BBP	DBP	DIBP	Cr(VI)
General materials	10	10	10	10	10	50	50	50	50	See remark (2)

Remark:

(1) PBBs and PBDEs method detection limit only for one substance;

(2) MDL for polymer and Composites is 8 mg/kg, MDL for coating on metals is 0.10 µg/cm².

3. RoHS Requirement (mg/kg):

Restricted substances	Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs	DEHP	BBP	DBP	DIBP
RoHS limit	100	1000	1000	1000	1000	1000	1000	1000	1000	1000



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4. Test Result(s):

Part No.	Part Description	Restricted Substances	Results (mg/kg)		Conclusion (P/F)
			EDXRF	Chemical testing	
1	White plastic	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
2	Red plastic	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
3	Gray plastic	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
4	Solder	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	/	/	P
		PBDEs	/	/	P
		DEHP	/	/	P
		DBP	/	/	P
		BBP	/	/	P
		DIBP	/	/	P



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Part No.	Part Description	Restricted Substances	Results (mg/kg)		Conclusion (P/F)
			EDXRF	Chemical testing	
5	Red PCB	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	D	N.D.	P
		PBDEs	D	N.D.	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
6	White plastic	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
7	Red plastic (wire insulation)	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
8	Black plastic (wire insulation)	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	/	N.D.	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P



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Part No.	Part Description	Restricted Substances	Results (mg/kg)		Conclusion (P/F)
			EDXRF	Chemical testing	
9	Blue plastic (wire insulation)	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	D	68	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P
10	Yellow plastic (wire insulation)	Cd	BL	/	P
		Pb	BL	/	P
		Hg	BL	/	P
		Cr(VI)	BL	/	P
		PBBs	BL	/	P
		PBDEs	BL	/	P
		DEHP	D	68	P
		DBP	/	N.D.	P
		BBP	/	N.D.	P
		DIBP	/	N.D.	P

Note:

mg/kg = milligram per kilogram = ppm

N.D. = Not detected (<MDL)

BL=Less than screening limits of XRF

D = DETECTED = Inconclusive

P = PASS

F = FAIL

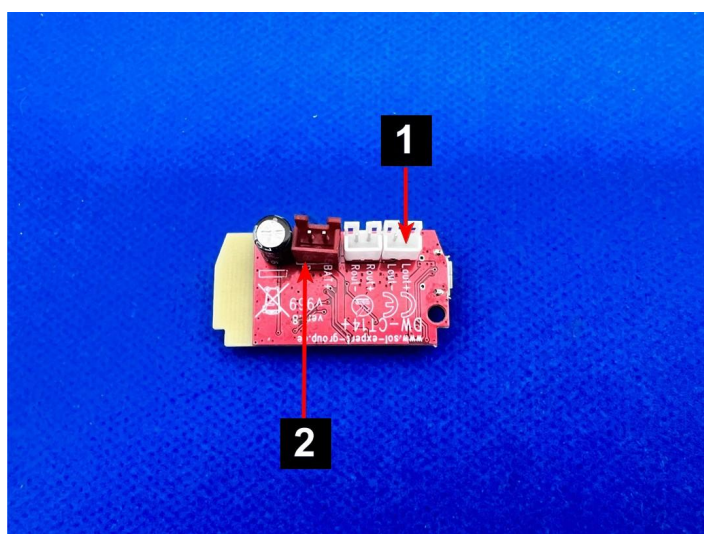
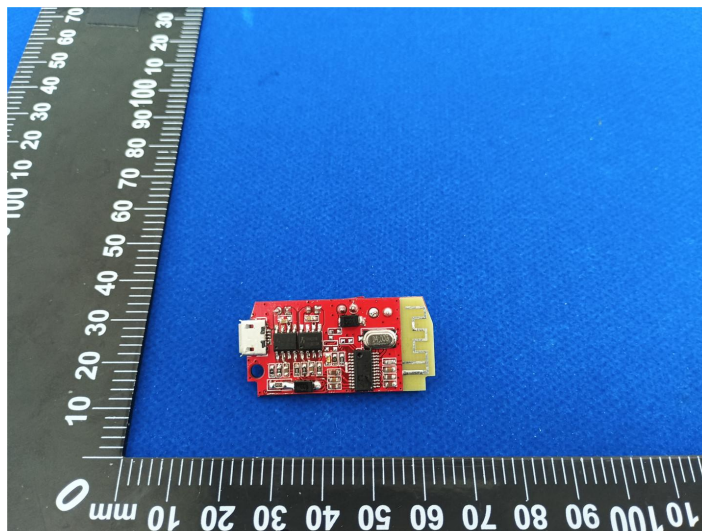
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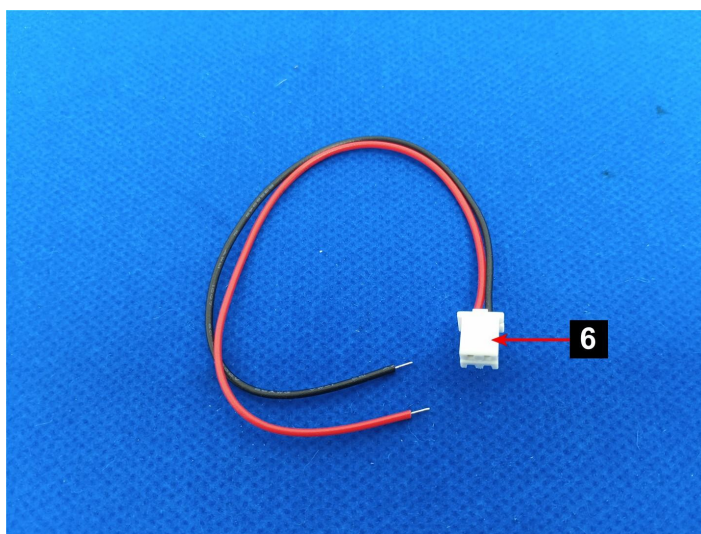
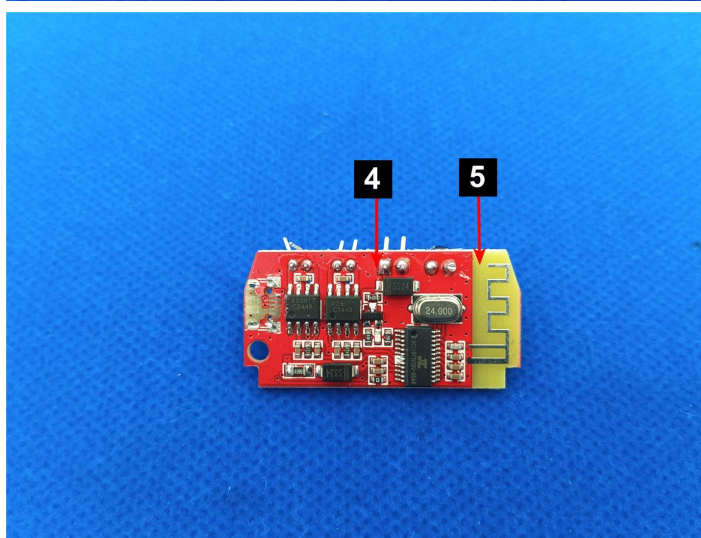
Photo(s) of the sample(s)





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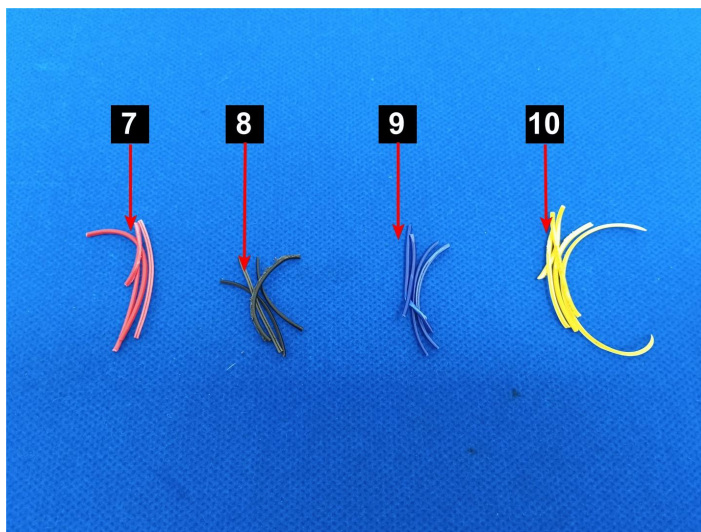
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