



# Test Report

Report No.:XNO250311032AX2-1

Date:Mar 14, 2025

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Applicant: RAY-TECH INTERNATIONAL LIMITED

Address: Unit 423, Overseas Students Pioneer Park, TengFei Road, LongCheng Street, Longgang, Shenzhen, China.

The following sample(s) and information were submitted and identified by the applicant

Sample Name: Bidirectional Mini Charger  
XNO Report Number: XNO250311032AX2-1  
Model No.: PD30W POWER ELF  
Trademark: LILEAD  
Manufacturer: RAY-TECH INTERNATIONAL LIMITED  
Manufacturer Address: Unit 423, Overseas Students Pioneer Park, TengFei Road, LongCheng Street, Longgang, Shenzhen, China.  
Sample Received Date: Mar 11, 2025  
Testing Period: Mar 11, 2025 to Mar 14, 2025  
Testing Requirements: Test as requested by client  
Test Method: Please refer to next page(s)  
Test Results: Please refer to next page(s)

## Summary of test results:

Test Requested	Conclusion
RoHS Directive 2011/65/EU Annex II amending Directive (EU)2015/863 - Lead, Mercury,Cadmium, Hexavalent Chromium, PBBs and PBDEs Content, Dibutyl phthalate (DBP), Benzylbutyl phthalate(BBP), Di-(2-ethylhexyl) phthalate (DEHP), Diisobutyl phthalate(DIBP) Content	PASS

### Authorized signature

Kyle Kuang

Assistant manager

### Approved Signatory

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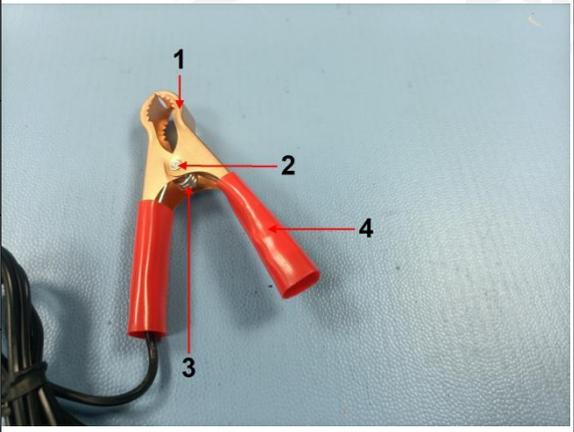
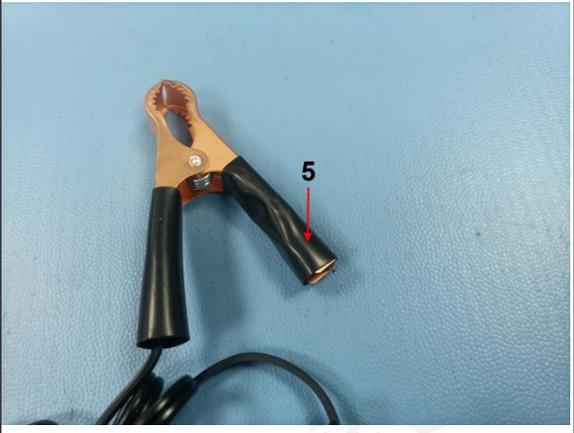
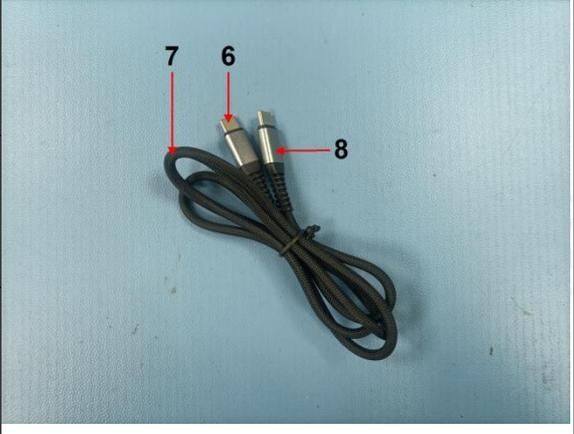
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**Test Result(s):**

**1. Test item description and Photo list**

Sample No.	Description	Remark	Photograph
1	Golden metal (clip)		
2	Silvery metal (fixing screws)		
3	Silvery metal (spring)		
4	Red plastic (insulated shell)		
5	Black plastic (insulated shell)		
6	Silvery metal (socket)		
7	Black artificial material (data wire sheath)		
8	Silvery metal (socket)		

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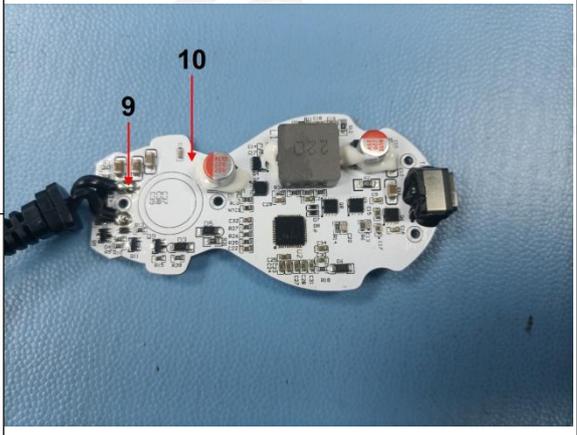
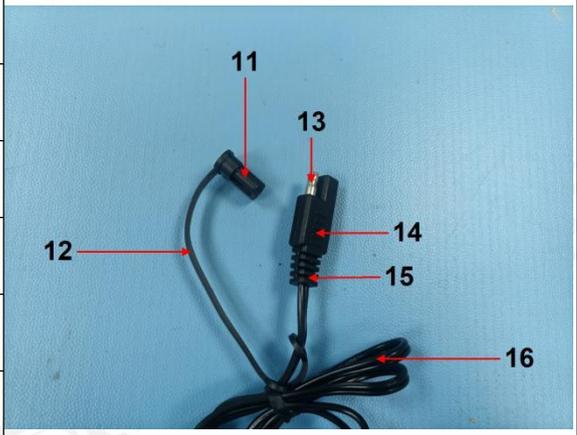
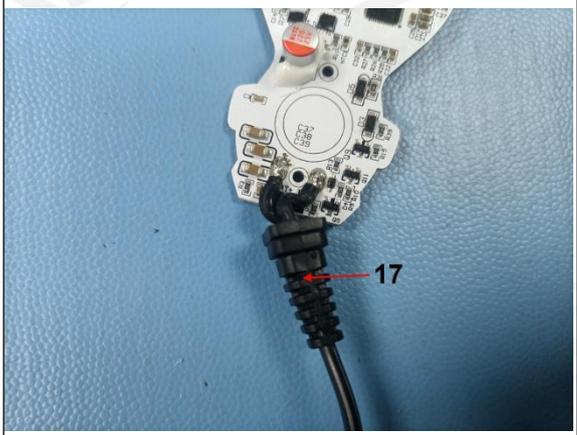
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Sample No.	Description	Remark	Photograph
9	Silvery metal (solder joints)		
10	White circuit board		
11	Black plastic (socket)		
12	Black plastic (socket wire sheath)		
13	Silvery metal (round socket)		
14	Black plastic (round socket)		
15	Black plastic (socket fixed head)		
16	Black plastic (wire sheath)		
17	Black plastic (wire fastener)		

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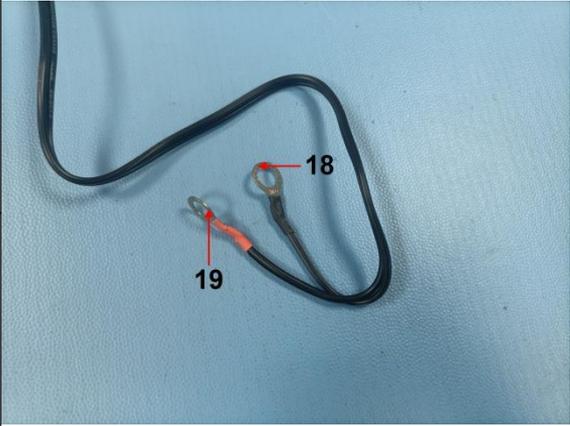
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Sample No.	Description	Remark	Photograph
18	Silvery metal (black wire contact plate)		
19	Silver metal (red wire contact plate)		
20	Black plastic (bottom shell)		
21	Black plastic (upper shell)		
22	Golden metal (core)		

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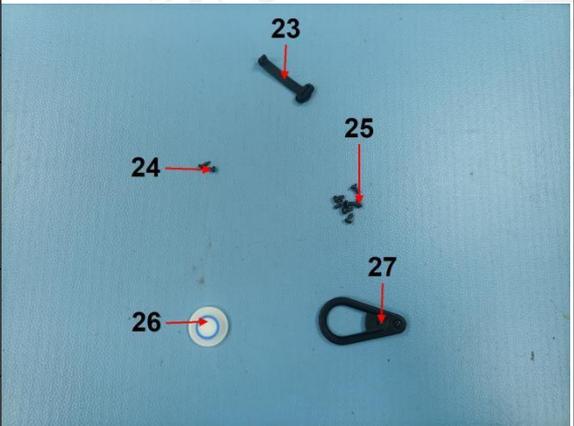
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Sample No.	Description	Remark	Photograph
23	Black plastic (accessories)		
24	Black metal (self-tapping screws)		
25	Black metal (screws)		
26	White plastic (push button)		
27	Black plastic (clasp)		

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## 2. Test Results

### 2.1 Screening test for the specified hazardous substances of RoHS for the selected materials of the submitted sample:

- Heavy Metal (Cadmium, Lead, Mercury, Chromium) Content Test
- Bromine Content Test

Test Method: IEC 62321-3-1:2013, and Quantification analyzed by Energy DispersiveX-ray Fluorescence Spectrometers.

Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
1	BL	BL	BL	BL	N.A.
2	BL	BL	BL	BL	N.A.
3	BL	BL	BL	BL	N.A.
4	BL	BL	BL	BL	BL
5	BL	BL	BL	BL	BL
6	BL	BL	BL	BL	N.A.
7	BL	BL	BL	BL	BL
8	BL	BL	BL	BL	N.A.
9	BL	BL	BL	BL	N.A.
10	BL	BL	BL	BL	BL
11	BL	BL	BL	BL	BL
12	BL	BL	BL	BL	BL
13	BL	BL	BL	BL	N.A.
14	BL	BL	BL	BL	BL
15	BL	BL	BL	BL	BL
16	BL	BL	BL	BL	BL
17	BL	BL	BL	BL	BL
18	BL	BL	BL	BL	N.A.
19	BL	BL	BL	BL	N.A.
20	BL	BL	BL	BL	BL
21	BL	BL	BL	BL	BL
22	BL	BL	BL	BL	N.A.
23	BL	BL	BL	BL	BL
24	BL	BL	BL	BL	N.A.
25	BL	BL	BL	BL	N.A.

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Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
26	BL	BL	BL	BL	BL
27	BL	BL	BL	BL	BL

Remarks:

1. "OL" denotes "over limit"
2. "BL" denotes "below limit"
3. "N.A." denotes "Not Applicable"
4. "Inconclusive" denotes result is intermediate between "OL" and "BL"
5. "^"denotes the screening result was inconclusive(X) or over limit (OL), thus further confirmation test was conducted, results are listed in 2.2 and 2.3.

XRF screening limits for different materials:

Materials	Concentration (mg/kg)				
	Cd	Cr	Pb	Hg	Br
<b>Metals</b>	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	N.A.
<b>Polymers</b>	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (300-3\sigma) < X$
<b>Composite material</b>	$BL \leq (50-3\sigma) < X < (150+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	$BL \leq (250-3\sigma) < X$

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## 2. 2 Test for Heavy Metals( Lead, Cadmium, Mercury and Hexavalent Chromium)

Test Method: IEC 62321-4:2013+A1:2017 & IEC 62321-5:2013 & IEC 62321-7-1:2015 & IEC 62321-7-2:2017, analyzed by ICP-OES, UV-VIS.

Element	Total Cadmium	Total Lead	Total Mercury	Hexavalent Chromium ▼	Hexavalent Chromium
Limit	100	1000	1000	-	1000
Unit	mg/kg	mg/kg	mg/kg	µg/cm <sup>2</sup>	mg/kg
MDL	5	5	5	0.10	5

### Remarks:

- 1 mg/kg = 1ppm = 0.0001%
- MDL = Method Detection Limit
- N.D. = Not Detected (Less than MDL)
- "-" = Not Regulated
- The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- IEC 62321 series is equivalent to EN 62321 series.
- ▼ = a.concentration is greater than 0.13ug/cm<sup>2</sup>,The sample coating is considered to contain Cr(VI);  
b.if Cr(VI)is N.D.(concentration less than 0.10ug/cm<sup>2</sup>).The coating is considered a non-Cr(VI) based coating;  
c.The result between 0.10ug/cm<sup>2</sup> and 0.13ug/cm<sup>2</sup> is considered to be inconclusive -unavoidable coating variations may influence the determination;  
Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

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## 2.3 Test for Flame retardants (PBBs&PBDEs)

Test Method: IEC 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS).

	<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>
PBBs	Monobromobiphenyl	-	mg/kg	5
	Dibromobiphenyl	-	mg/kg	5
	Tribromobiphenyl	-	mg/kg	5
	Tetrabromobiphenyl	-	mg/kg	5
	Pentabromobiphenyl	-	mg/kg	5
	Hexabromobiphenyl	-	mg/kg	5
	Heptabromobiphenyl	-	mg/kg	5
	Octabromobiphenyl	-	mg/kg	5
	Nonabromobiphenyl	-	mg/kg	5
	Decabromobiphenyl	-	mg/kg	5
	Sum of PBBs	1000	mg/kg	-
PBDEs	Monobromodiphenyl Ether	-	mg/kg	5
	Dibromodiphenyl Ether	-	mg/kg	5
	Tribromodiphenyl Ether	-	mg/kg	5
	Tetrabromodiphenyl Ether	-	mg/kg	5
	Pentabromodiphenyl Ether	-	mg/kg	5
	Hexabromodiphenyl Ether	-	mg/kg	5
	Heptabromodiphenyl Ether	-	mg/kg	5
	Octabromodiphenyl Ether	-	mg/kg	5
	Nonabromodiphenyl Ether	-	mg/kg	5
	Decabromodiphenyl Ether	-	mg/kg	5
	Sum of PBDEs	1000	mg/kg	-

Remarks:

1. 1 mg/kg = 1ppm = 0.0001%
2. MDL = Method Detection Limit
3. N.D. = Not Detected (Less than MDL)
4. "-" = Not Regulated

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**2.4 Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) Content—RoHS Directive 2011/65/EU Annex II amending Directive (EU)2015/863**

Test Method: IEC 62321-8:2017, analyzed by Gas Chromatography and Mass Spectrometry (GC-MS).

Element	Dibutyl phthalate (DBP)	Benzyl butyl phthalate (BBP)	Di-(2-ethylhexyl) phthalate (DEHP)	Diisobutyl phthalate(DIBP)
Limit	1000	1000	1000	1000
Unit	mg/kg	mg/kg	mg/kg	mg/kg
MDL	50	50	50	50
4	N.D.	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.	N.D.
7	N.D.	N.D.	N.D.	N.D.
10	N.D.	N.D.	N.D.	N.D.
11	N.D.	N.D.	N.D.	N.D.
12	N.D.	N.D.	N.D.	N.D.
14	N.D.	N.D.	N.D.	N.D.
15	N.D.	N.D.	N.D.	N.D.
16	N.D.	N.D.	N.D.	N.D.
17	N.D.	N.D.	N.D.	N.D.
20	N.D.	N.D.	N.D.	N.D.
21	N.D.	N.D.	N.D.	N.D.
23	N.D.	N.D.	N.D.	N.D.
26	N.D.	N.D.	N.D.	N.D.
27	N.D.	N.D.	N.D.	N.D.

Remarks:

1. 1 mg/kg = 1ppm = 0.0001%
2. MDL = Method Detection Limit
3. N.D. = Not Detected (Less than MDL)

**Note:** As specified by applicant, to test content in the selected materials of the submitted samples. The test results are only responsible for the submitted sample. The test report is only for customer research, teaching, internal quality control, product development and other purposes, for reference only.

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Sample Photo:



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