

# Test Report

Report No.: PTCQ02170721806-EN01

Date: Nov. 10, 2017

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**Applicant:** Berdis Lighting Co.,LTD.

**Address:** 6F,No.1, South 2nd Lane,HuaTai East Road,Caosan Industrial Park,Guzhen Town,Zhongshan City,Guangdong Province,China

The following merchandise was (were) submitted and identified by client as:

**Sample Description:** LED Driver

**Style No.:** A03-A0024 A05

**Series Models:** A03-0024 A04,A03-0024 A02,A03-0018 A03,A03-0018 A09,A03-0018 A10,  
A03-0012 A08,A03-0012 A12,A03-0012 A13,A03-0007 A08,A03-0007 A12,  
A03-0003 A04

**Trade Mark:** BERDIS

**Sample Received Date:** Oct. 12, 2017

**Completed Date:** Nov. 10, 2017

**Test Requested and Conclusion(s):**

No.	Test Sample	Standard and Requirement	Conclusion(s)
1	Submitted sample	RoHS Directive 2011/65/EU and its subsequent amendments	PASS

**Test Result(s):** Please refer to next page(s).

Signed for and on Behalf of PTC



Raul Cheng / P & C Department General Manager  
DongGuan Precise Testing and Certification Corp. Ltd.

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**Test Result(s):**

RoHS - Lead (Pb)/Cadmium(Cd)/Mercury(Hg)/Hexavalent Chromium(Cr<sup>6+</sup>)/PBBs/PBDEs

Test Method: IEC62321-3-1: 2013, IEC62321-5: 2013, IEC62321-4: 2013, IEC 62321-7-1:2015, IEC 62321-7-2: 2017, analyzed by EDXRF & AAS & ICP-AES & GC-MS & UV-Vis.

No.	Material Description	EDXRF Result					Chemical Result (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	White plastic(shell)	BL	BL	BL	BL	BL	--	PASS
2	Green plastic(connector J1)	BL	BL	BL	BL	BL	--	PASS
3	Silvery metal(screw)	BL	BL	BL	161	--	--	PASS
4	Golden metal with silvery plating(inner, connector J1)	BL	BL	BL	BL	--	--	PASS
5	Yellow body with black printing(capacitor CX1)	BL	BL	BL	BL	BL	--	PASS
6	Green magnet(core, inductor LF2)	BL	BL	BL	BL	--	--	PASS
7	Black plastic(base, inductor LF2)	BL	BL	BL	BL	BL	--	PASS
8	Copper metal with golden plating(coil, inductor LF2)	BL	BL	BL	BL	--	--	PASS
9	Copper metal with red plating(coil, inductor LF3)	BL	BL	BL	BL	--	--	PASS
10	Black body with grey printing(diode D3)	BL	BL	BL	BL	BL	--	PASS
11	Red body(capacitor C1)	BL	BL	BL	BL	BL	--	PASS
12	Blue body(RY1)	BL	BL	BL	BL	BL	--	PASS
13	Blue body(CY2)	BL	BL	BL	BL	BL	--	PASS
14	Black body(diode D5)	BL	BL	BL	BL	BL	--	PASS
15	Black soft plastic(sleeve, inductor L1)	BL	BL	BL	BL	BL	--	PASS
16	Copper metal(coil,	BL	BL	BL	BL	--	--	PASS

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	inductor L1)							
17	Grey magnet(core, inductor L1)	BL	BL	BL	BL	--	--	PASS
18	Black body(IC)	BL	BL	BL	BL	BL	--	PASS
19	Yellow plastic with glue(tape, transformer TB)	BL	BL	BL	BL	BL	--	PASS
20	Grey magnet(core, transformer TB)	BL	BL	BL	BL	--	--	PASS
21	Black plastic(bobbin, transformer TB)	BL	BL	BL	BL	BL	--	PASS
22	Copper metal(foil)	BL	BL	BL	BL	--	--	PASS
23	Silvery solder(foil, transformer TB)	BL	BL	BL	BL	--	--	PASS
24	Copper metal with yellow surface(coil, transformer TB)	BL	BL	BL	BL	--	--	PASS
25	Copper metal(coil, transformer TB)	BL	BL	BL	BL	--	--	PASS
26	Transparent plastic(coil sleeve)	BL	BL	BL	BL	BL	--	PASS
27	Silvery solder(pin, transformer TB)	BL	BL	BL	BL	--	--	PASS
28	Transparent plastic with black printing(label, inductor LF1)	BL	BL	BL	BL	BL	--	PASS
29	Silvery metal(inductor LF1)	BL	BL	BL	BL	--	--	PASS
30	Copper metal with grey plating(foil)	BL	BL	BL	BL	--	--	PASS
31	Silvery solder(foil, inductor LF1)	BL	BL	BL	BL	--	--	PASS
32	Black plastic(bobbin, inductor LF1)	BL	BL	BL	BL	BL	--	PASS
33	Blue plastic with white	BL	BL	BL	BL	BL	--	PASS

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	printing(capacitor sleeve)							
34	Silvery metal(capacitor shell)	BL	BL	BL	BL	--	--	PASS
35	Black rubber(capacitor)	BL	BL	BL	BL	BL	--	PASS
36	Transparent soft plastic(capacitor)	BL	BL	BL	BL	BL	--	PASS
37	Brown paper with liquid(capacitor film)	BL	BL	BL	BL	BL	--	PASS
38	Silvery metal(capacitor foil)	BL	BL	BL	BL	--	--	PASS
39	Dull silvery metal(capacitor foil)	BL	BL	BL	BL	--	--	PASS
40	Silvery metal(capacitor connector)	BL	BL	BL	BL	--	--	PASS
41	Silvery metal(capacitor pin)	BL	BL	BL	BL	--	--	PASS
42	Black plastic with golden printing(capacitor sleeve)	BL	BL	BL	BL	BL	--	PASS
43	Brown body(chip capacitorC4)	BL	BL	BL	BL	BL	--	PASS
44	White/black body(chip resistor RS1)	BL	BL	BL	BL	BL	--	PASS
45	White body(chip capacitor C3)	BL	BL	BL	BL	BL	--	PASS
46	Green PCB(LED driver)	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	PASS
47	Silvery solder(PCB, LED driver)	IN	BL	BL	BL	--	Pb: 265	PASS

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- Note:**
1. mg/kg = milligram per kilogram (ppm).
  2. N.D. = Not Detected (<RL).
  3. Negative = Absence of Cr<sup>6+</sup>.
  4. Positive = Presence of Cr<sup>6+</sup>: the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.
  5. The result are obtained by EDXRF for primary screening, if the result exceeds the below limit (BL), and further chemical testing.
  6. "E"= This material is tin-lead solder or metal alloy proved by client, lead in tin-lead solder or copper alloy is exempted on the requirements of RoHS directive (EU Directive 2011/65/EU).

**Screening limits in mg/kg for regulated elements in various matrices**

Elements	Polymer	Metal	Composite Materials
<b>Pb</b>	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(500-3σ)<X<(1500+3σ)≤ OL
<b>Cd</b>	BL≤(70-3σ)<X<(130+3σ)≤ OL	BL≤(70-3σ)<X<(130+3σ)≤ OL	LOD<X<(150+3σ)≤OL
<b>Hg</b>	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(500-3σ)<X<(1500+3σ)≤ OL
<b>Cr</b>	BL≤(700-3σ)<X	BL≤(700-3σ)<X	BL≤(500-3σ)<X
<b>Br</b>	BL≤(300-3σ)<X	--	BL≤(250-3σ)<X

BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection

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**Chemical Testing - Detection Limit & 2011/65/EU Limit:**

No	Name of Chemicals	Detection Limit (mg/kg)	2011/65/EU Limit (mg/kg)
1	Lead (Pb)	5	1000
2	Cadmium (Cd)	5	100
3	Mercury (Hg)	5	1000
4	Chromium VI (Cr VI)	Non-metal: 10 Metal: Negative	Non-metal: 1000 Metal: Negative
5	Polybromobiphenyls (PBBs) -Bromobiphenyl (MonoBB) -Dibromobiphenyl (DiBB) -Tribromobiphenyl (TriBB) -Tetrabromobiphenyl (TetraBB) -Pentabromobiphenyl (PentaBB) -Hexabromobiphenyl (HexaBB) -Heptabromobiphenyl (HeptaBB) -Octabromobiphenyl (OctaBB) -Nonabromobiphenyl (NonaBB) -Decabromobiphenyl (DecaBB)	Each 5	Sum: 1 000
6	Polybromodiphenyl ethers (PBDEs) -Bromodiphenyl ether (MonoBDE) -Dibromodiphenyl ether (DiBDE) -Tribromodiphenyl ether (TriBDE) -Tetrabromodiphenyl ether (TetraBDE) -Pentabromodiphenyl ether (PentaBDE) -Hexabromodiphenyl ether (HexaBDE) -Heptabromodiphenyl ether (HeptaBDE) -Octabromodiphenyl ether (OctaBDE) -Nonabromodiphenyl ether (NonaBDE) -Decabromodiphenyl ether (DecaBDE)	Each 5	Sum: 1 000

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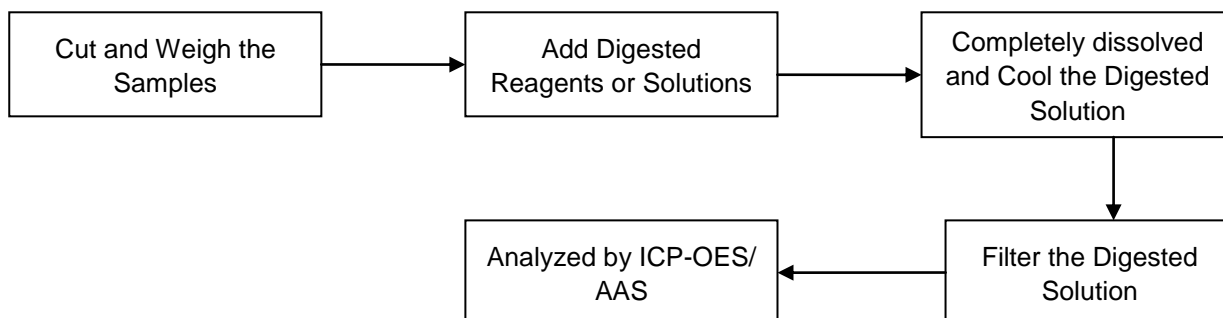
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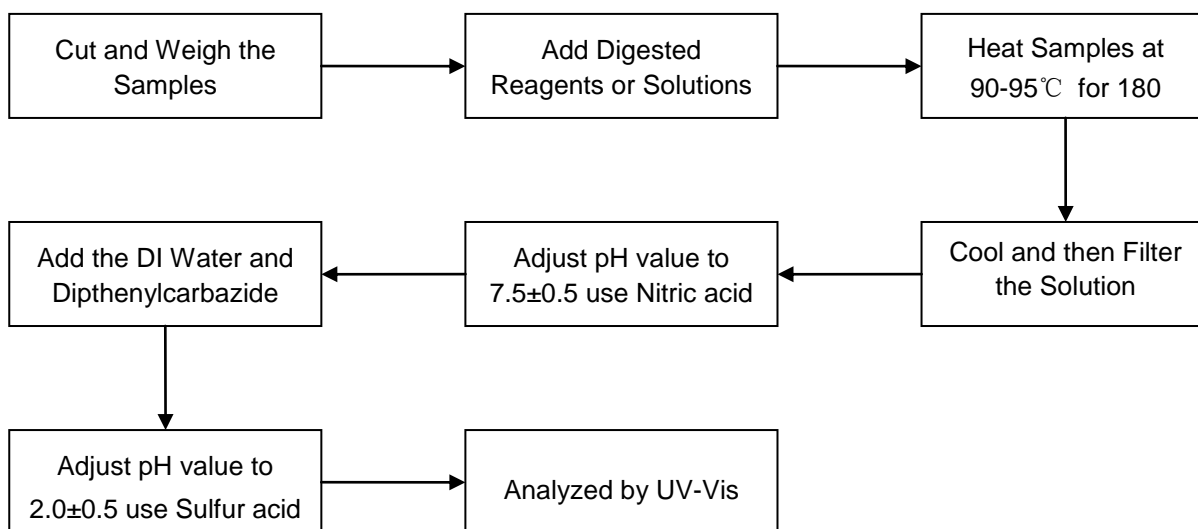
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## Test Process Flow:

### 1. Lead, Cadmium, Mercury



### 2. Hexavalent Chromium (Non-metal)



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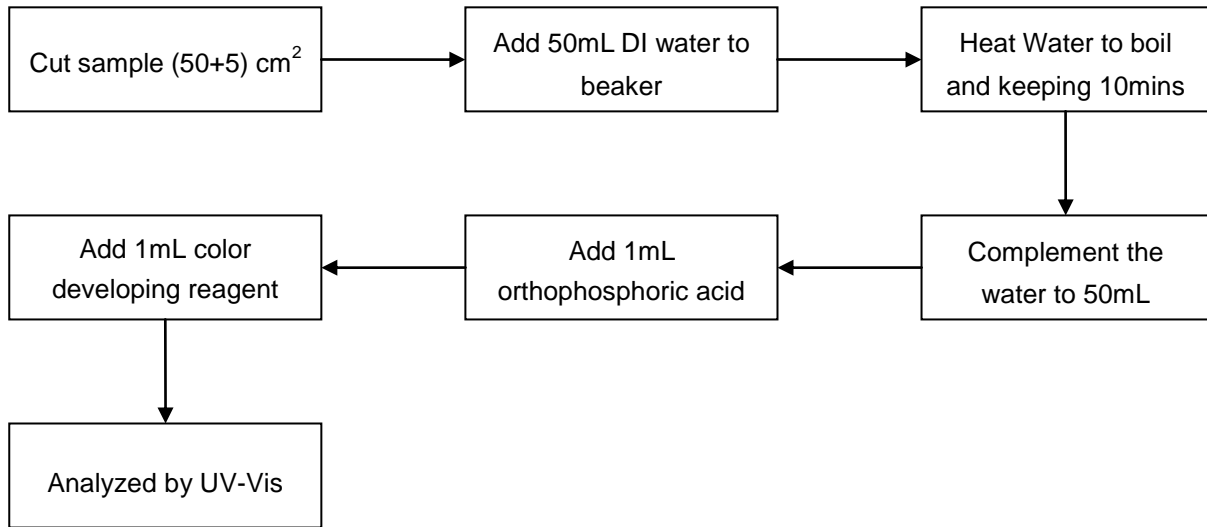
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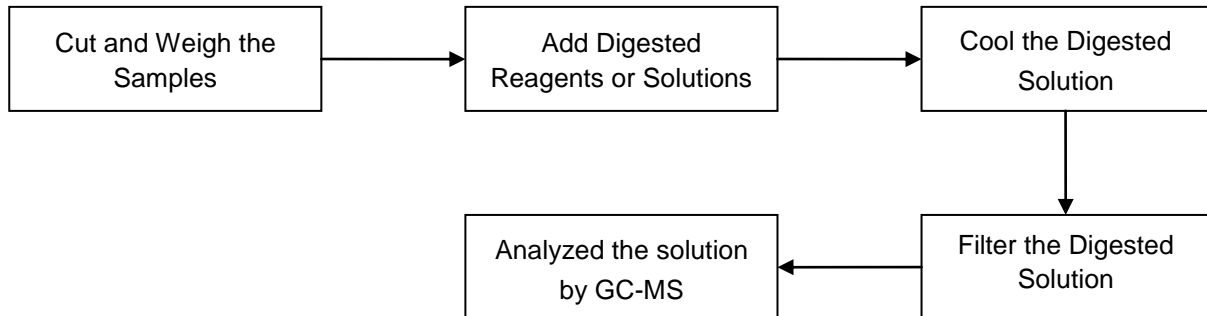
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## Hexavalent Chromium (Metal)



## 3. PBBs & PBDEs



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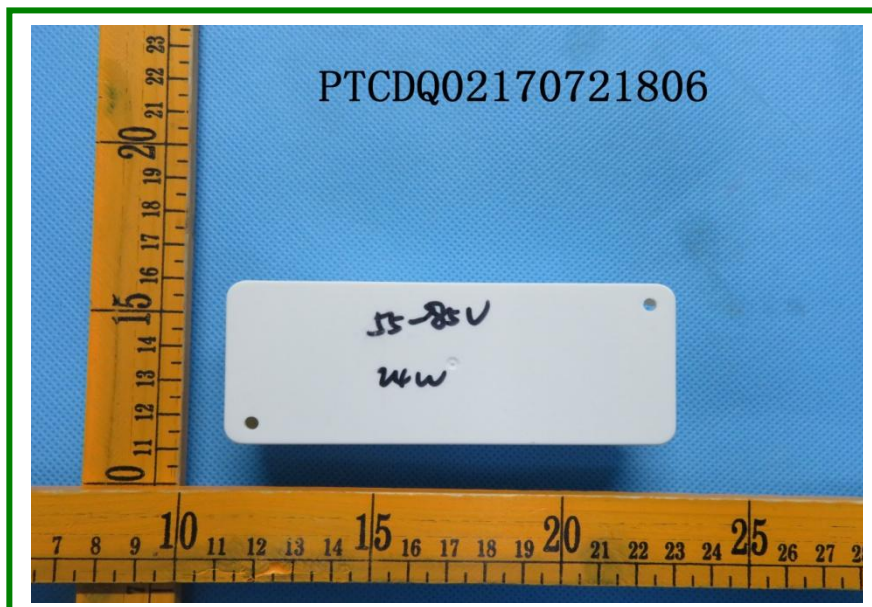
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Photo(s) of Sample:



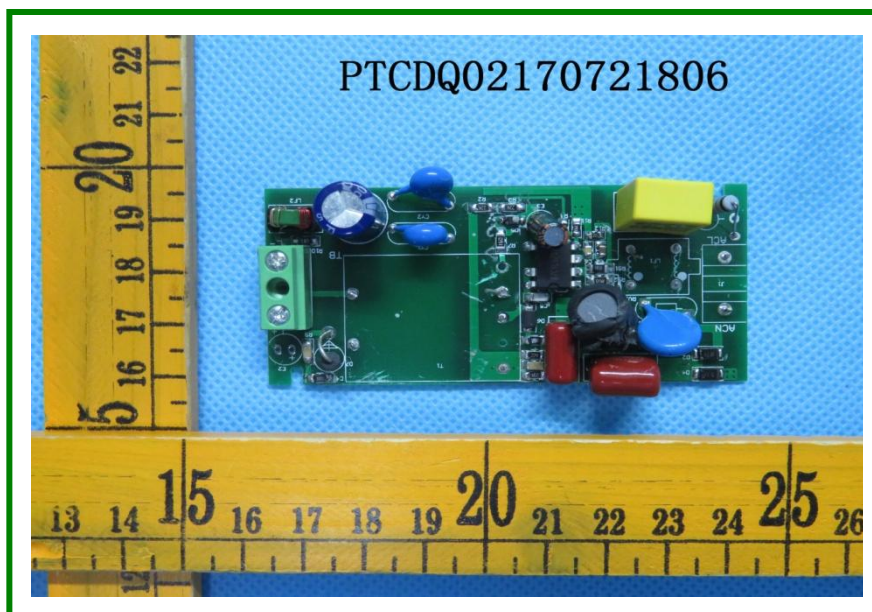
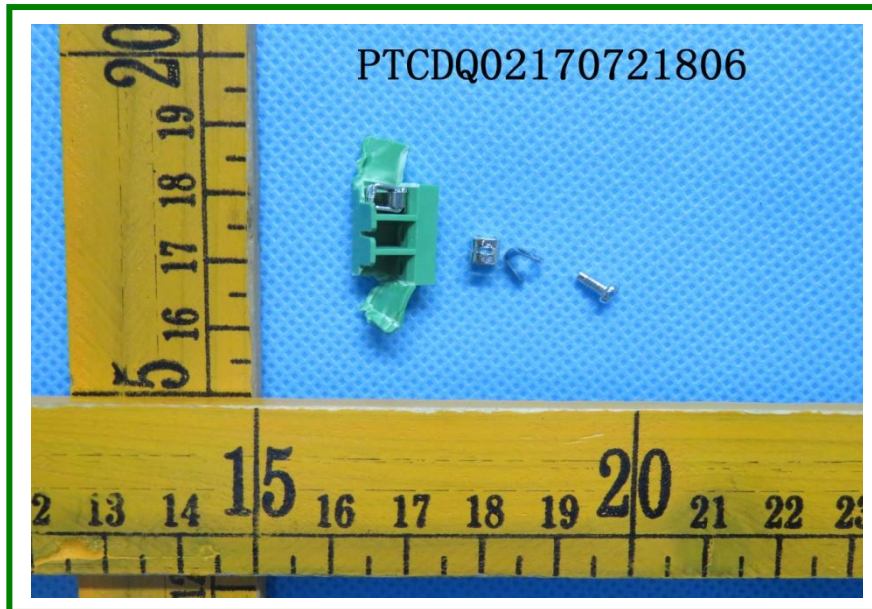
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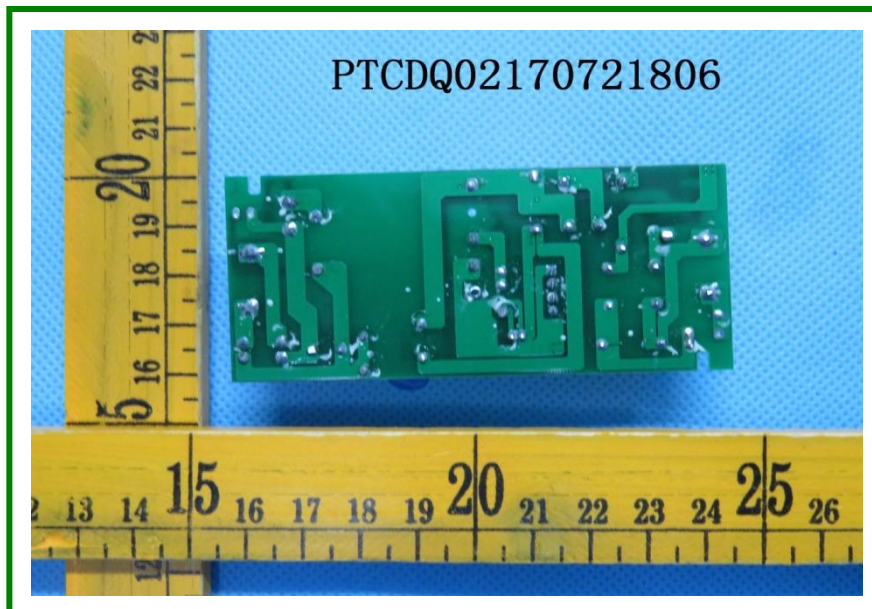
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\*\*\*End of Report\*\*\*

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