Report Reference No :DETR1911290203007

Applicant : SHENZHEN LEPOWER OPTO ELECTRONICS CORP.,LTD

Address : Floor 3-5th, Building B Plant, Chuangfu Science & Technology Park, No.202 Shihuan Road, Shangwu Community, Shiyan Street, Bao' an District, Shenzhen City, Guangdong Province, P.R.China

Report on the submitted sample said to be:

Sample Name : LED Street Light

Trade Name : LEPOWER®

Model No. : LY-L293-240-A，LY-L293-240-B，LY-L293-240-C

Model/Type reference: : See model list

Sample Received Date :March 24, 2020

Testing Period : March 24, 2020 to March 31, 2020

Test Site : 3/F., Building 4, 3rd Industrial Zone, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China

Test Requested		Result
1	As specified by the client, to determine Pb, Cd, Hg, Cr(VI), PBBs&&PBDEs content in the submitted sample in accordance with EU Directive 2011/65/EU (ROHS 2.0) and to determine DIBP, DEHP, DBP&&BBP content in the submitted sample in accordance with EU Directive 2015/863 (RoHS, Previously 2002/95/EC).	Pass

******FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)******

Tested by : Stephen Song **Reviewed by** : Jonyin

Approved by: Lab manager **Date** : **Apr 01, 2020**

Shenzhen DE-Testing Detection Co., Ltd

Model List:

Model	Supply current (A)	Power (W)	Dimension (L x W x H) (mm)	LED Driver	Product weight (kg)	LED Qty (Pcs.)
LY-L291-20-A	0,2	20	606 x 231 x 122	XLG-25-AB	4,6	24
LY-L291-20-B	0,2	20	606 x 231 x 122	LDP-075M054H	4,6	24
LY-L291-30-A	0,3	30	606 x 231 x 122	XLG-50-AB	4,6	24
LY-L291-30-B	0,3	30	606 x 231 x 122	LDP-075M054H	4,6	24
LY-L291-40-A	0,4	40	606 x 231 x 122	XLG-50-AB	4,6	36
LY-L291-40-B	0,4	40	606 x 231 x 122	LDP-075M054H	4,6	36
LY-L291-50-A	0,5	50	606 x 231 x 122	XLG-50-AB	4,6	36
LY-L291-50-B	0,5	50	606 x 231 x 122	LDP-075M054H	4,6	36
LY-L291-50-C	0,5	50	606 x 231 x 122	EUM-075S210DG	4,6	36
LY-L291-60-A	0,6	60	606 x 231 x 122	XLG-75-H-AB	4,6	36
LY-L291-60-B	0,6	60	606 x 231 x 122	LDP-075M054H	4,6	36
LY-L291-60-C	0,6	60	606 x 231 x 122	EUM-075S210DG	4,6	36
LY-L292-70-A	0,7	70	699 x 279 x 122	XLG-75-H-AB	6,2	48
LY-L292-70-B	0,7	70	699 x 279 x 122	LDP-075M054H	6,2	48
LY-L292-70-C	0,7	70	699 x 279 x 122	EUM-075S210DG	6,2	48
LY-L292-80-A	0,8	80	699 x 279 x 122	XLG-100-H-AB	6,2	48
LY-L292-80-B	0,8	80	699 x 279 x 122	LDP-105M062	6,2	48
LY-L292-80-C	0,8	80	699 x 279 x 122	EUM-100S280DG	6,2	48
LY-L292-90-A	0,9	90	699 x 279 x 122	XLG-100-H-AB	6,2	72
LY-L292-90-B	0,9	90	699 x 279 x 122	LDP-105M062	6,2	72
LY-L292-90-C	0,9	90	699 x 279 x 122	EUM-100S280DG	6,2	72
LY-L292-100-A	1,0	100	699 x 279 x 122	XLG-100-H-AB	6,2	72
LY-L292-100-B	1,0	100	699 x 279 x 122	LDP-105M062	6,2	72
LY-L292-100-C	1,0	100	699 x 279 x 122	EUM-100S280DG	6,2	72
LY-L292-110-A	1,1	110	699 x 279 x 122	XLG-150-H-AB	6,2	72
LY-L292-110-B	1,1	110	699 x 279 x 122	LDP-150M054	6,2	72

LY-L292-110-C	1,1	110	699 x 279 x 122	EUM-150S420DG	6,2	72
LY-L292-120-A	1,2	120	699 x 279 x 122	XLG-150-H-AB	6,2	72
LY-L292-120-B	1,2	120	699 x 279 x 122	LDP-150M054	6,2	72
LY-L292-120-C	1,2	120	699 x 279 x 122	EUM-150S420DG	6,2	72
LY-L293-130-A	1,3	130	814 x 346 x 126	XLG-150-H-AB	8,9	90
LY-L293-130-B	1,3	130	814 x 346 x 126	LDP-150M054	8,9	90
LY-L293-130-C	1,3	130	814 x 346 x 126	EUM-150S420DG	8,9	90
LY-L293-140-A	1,4	140	814 x 346 x 126	XLG-150-H-AB	8,9	90
LY-L293-140-B	1,4	140	814 x 346 x 126	LDP-150M054	8,9	90
LY-L293-140-C	1,4	140	814 x 346 x 126	EUM-150S420DG	8,9	90
LY-L293-150-A	1,5	150	814 x 346 x 126	XLG-150-H-AB	8,9	90
LY-L293-150-B	1,5	150	814 x 346 x 126	LDP-150M054	8,9	90
LY-L293-150-C	1,5	150	814 x 346 x 126	EUM-150S420DG	8,9	90
LY-L293-160-A	1,6	160	814 x 346 x 126	XLG-200-H-AB	8,9	120
LY-L293-160-B	1,6	160	814 x 346 x 126	LDP-200M054-B	8,9	120
LY-L293-160-C	1,6	160	814 x 346 x 126	EUM-200S560DG	8,9	120
LY-L293-170-A	1,7	170	814 x 346 x 126	XLG-200-H-AB	8,9	120
LY-L293-170-B	1,7	170	814 x 346 x 126	LDP-200M054-B	8,9	120
LY-L293-170-C	1,7	170	814 x 346 x 126	EUM-200S560DG	8,9	120
LY-L293-180-A	1,8	180	814 x 346 x 126	XLG-200-H-AB	8,9	120
LY-L293-180-B	1,8	180	814 x 346 x 126	LDP-200M054-B	8,9	120
LY-L293-180-C	1,8	180	814 x 346 x 126	EUM-200S560DG	8,9	120
LY-L293-190-A	1,9	190	814 x 346 x 126	XLG-200-H-AB	8,9	120
LY-L293-190-B	1,9	190	814 x 346 x 126	LDP-200M054-B	8,9	120
LY-L293-190-C	1,9	190	814 x 346 x 126	EUM-200S560DG	8,9	120
LY-L293-200-A	2,0	200	814 x 346 x 126	XLG-200-H-AB	8,9	120
LY-L293-200-B	2,0	200	814 x 346 x 126	LDP-200M054-B	8,9	120
LY-L293-200-B	2,0	200	814 x 346 x 126	EUM-200S560DG	8,9	120
LY-L293-210-A	2,1	210	814 x 346 x 126	XLG-240-H-AB	8,9	120
LY-L293-210-B	2,1	210	814 x 346 x 126	LDP-240M062	8,9	120

LY-L293-210-C	2,1	210	814 x 346 x 126	EUM-240S670DG	8,9	120
LY-L293-220-A	2,2	220	814 x 346 x 126	XLG-240-H-AB	8,9	120
LY-L293-220-B	2,2	220	814 x 346 x 126	LDP-240M062	8,9	120
LY-L293-220-C	2,2	220	814 x 346 x 126	EUM-240S670DG	8,9	120
LY-L293-230-A	2,3	230	814 x 346 x 126	XLG-240-H-AB	8,9	120
LY-L293-230-B	2,3	230	814 x 346 x 126	LDP-240M062	8,9	120
LY-L293-230-C	2,3	230	814 x 346 x 126	EUM-240S670DG	8,9	120
LY-L293-240-A	2,4	240	814 x 346 x 126	XLG-240-H-AB	8,9	120
LY-L293-240-B	2,4	240	814 x 346 x 126	LDP-240M062	8,9	120
LY-L293-240-C	2,4	240	814 x 346 x 126	EUM-240S670DG	8,9	120

Remark:

Models including capital letter “A” denote that the LED driver was made by MEAN WELL Enterprises Co., Ltd.;

Models including capital letter “B” denote that the LED driver was made by Moso Power Supply Technology Co., LTD.;

Models including capital letter “C” denote that the LED driver was made by INVENTRONICS (HANGZHOU), INC..

Test Result:

1.1 EU Directive 2011/65/EU (RoHS, Previously 2002/95/EC) - XRF

Method: With reference to IEC 62321-3-1:2013
Analysis was performed by X-ray Fluorescence Spectrometry (XRF)

No.	Specimen Description	Result(s)				
		Br	Pb	Hg	Cd	Cr
1	Silver metal (shell)	NC	BL	BL	BL	BL
2	Power Shell Label	NC	BL	BL	BL	BL
3	Power shell	X	BL	BL	BL	BL
4	Transparent plastic (lens)	BL	BL	BL	BL	BL
5	Solder	NC	BL	BL	BL	BL
6	LED light board	NC	BL	BL	BL	BL
7	led	NC	BL	BL	BL	BL
8	Sample 8	NC	BL	BL	BL	BL
9	Sample 9	NC	BL	BL	BL	BL
10	Sample 10	NC	BL	BL	BL	BL
11	lens	BL	BL	BL	BL	BL
12	Sample 12 (PC)	BL	BL	BL	BL	BL
13	Rubber ring (PC)	BL	BL	BL	BL	BL
14	Glass (shade)	BL	BL	BL	BL	BL
15	Waterproof ring (light board)	BL	BL	BL	BL	BL
16	label	NC	BL	BL	BL	BL
17	Waterproof ring (power cavity)	BL	BL	BL	BL	BL
18	Black body (PC)	BL	BL	BL	BL	BL
19	Black body (PC)	BL	BL	BL	BL	BL
20	Black body (PC)	BL	BL	BL	BL	BL
21	Black body (PC)	BL	BL	BL	BL	BL
22	Black body (PC)	BL	BL	BL	BL	BL
23	Blue body (PC)	BL	BL	BL	BL	BL
24	Black body (PC)	BL	BL	BL	BL	BL

25	silvery metal	NC	BL	BL	BL	BL
26	silvery metal	NC	BL	BL	BL	BL
27	silvery metal	NC	BL	BL	BL	BL
28	Silver metal (screw)	NC	BL	BL	BL	BL
29	Silver metal (screw)	NC	BL	BL	BL	BL
30	Silver metal (screw)	NC	BL	BL	BL	BL
31	Silver metal (screw)	NC	BL	BL	BL	BL
32	silvery metal	NC	BL	BL	BL	BL
33	Silver metal (screw)	NC	BL	BL	BL	BL
34	Silver metal (screw)	NC	BL	BL	BL	BL
35	Silver metal (screw)	NC	BL	BL	BL	BL
36	Silver metal (screw)	NC	BL	BL	BL	BL
37	Core	NC	BL	BL	BL	BL
38	Yellow belt green plastic (wire sheath)	BL	BL	BL	BL	BL
39	Core	NC	BL	BL	BL	BL
40	Core	NC	BL	BL	BL	BL
41	Black plastic (wire sheath)	BL	BL	BL	BL	BL
42	White plastic (wire sheath)	BL	BL	BL	BL	BL
43	Black plastic (wire sheath)	BL	BL	BL	BL	BL
44	casing	BL	BL	BL	BL	BL
45	silvery metal	NC	BL	BL	BL	BL
46	Blue casing	BL	BL	BL	BL	BL
47	Core	NC	BL	BL	BL	BL
48	White plastic (wire sheath)	BL	BL	BL	BL	BL
49	Blue plastic (wire sheath)	BL	BL	BL	BL	BL
50	Black plastic (wire sheath)	BL	BL	BL	BL	BL
51	Core	NC	BL	BL	BL	BL
52	Black plastic (wire sheath)	BL	BL	BL	BL	BL
53	Green Plastic (Wire Cover)	BL	BL	BL	BL	BL

54	Solder	NC	BL	BL	BL	BL
55	Blue plastic (wire sheath)	BL	BL	BL	BL	BL
56	Pink Plastic (Wire Cover)	BL	BL	BL	BL	BL
57	Power shell	X	BL	BL	BL	BL
58	Power Shell Label	BL	BL	BL	BL	BL
59	Power shell	X	BL	BL	BL	BL
60	Power Shell Label	BL	BL	BL	BL	BL

Note:
- BL = Below Limit by XRF analysis
- OL = Over Limit by XRF analysis
- IN = Inconclusive (questionable, need further chemical analysis)

  NC = Not Conducted
- 1% = 10000 mg/kg = 10000 ppm

Element	Unit	Polymer	Metal	Composite Material
Cd	mg/kg	BL ≤ (70-3σ) < X < (130+3σ) ≤ OL	BL ≤ (70-3σ) < X < (130+3σ) ≤ OL	LOD < X < (150+3σ) ≤ OL
Pb	mg/kg	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < X < (1500+3σ) ≤ OL
Hg	mg/kg	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < X < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < X < (1500+3σ) ≤ OL
Br	mg/kg	BL ≤ (300-3σ) < X	--	BL ≤ (250-3σ) < X
Cr	mg/kg	BL ≤ (700-3σ) < X	BL ≤ (700-3σ) < X	BL ≤ (500-3σ) < X

Remark :
(1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for CrVI) and GC/MS (for PBBs/PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321: 2013.

BL = Below Limit by XRF analysis

OL = Over Limit by XRF analysis

X = Inconclusive

LOD = Limit of Detection

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

(3) The maximum permissible limit is quoted from the EU Directive 2011/65/EU Annex II

RoHS Restricted Substances	Maximum Concentration Value (by weight in homogenous materials)
Lead (Pb)	0.1%
Cadmium (Cd)	0.01%
Mercury (Hg)	0.1%
Hexavalent Chromium (Cr VI)	0.1%
Polybrominated biphenyls (PBBs)	0.1%
Polybrominated Diphenylethers (PBDEs)	0.1%
Diisobutyl phthalate（DIBP）	0.1%
Phthalic acid（DEHP）	0.1%
Dibutyl phthalate（DBP）	0.1%
Butyl benzyl phthalate（BBP）	0.1%

1.2 EU Directive 2015/863 (RoHS, Previously 2002/95/EC) - Phthalates

Method: With reference to IEC 62321-6:2015
Analysis was performed by Gas Chromatography Mass Spectrometer (GC-MS)

No.	Specimen Description	Result(s)			
		DIBP	DEHP	DBP	BBP
1	Silver metal	ND	ND	ND	ND
2	Power Shell	ND	ND	ND	ND
3	Power shell	ND	ND	ND	ND
4	Transparent	ND	ND	ND	ND
5	Solder	ND	ND	ND	ND
6	LED light board	ND	ND	ND	ND
7	led	ND	ND	ND	ND
8	Sample 8	ND	ND	ND	ND
9	Sample 9	ND	ND	ND	ND
10	Sample 10	ND	ND	ND	ND
11	lens	ND	ND	ND	ND
12	Sample 12 (PC)	ND	ND	ND	ND
13	Rubber ring	ND	ND	ND	ND
14	Glass (shade)	NC	BL	BL	BL
15	Waterproof ring	ND	ND	ND	ND
16	label	ND	ND	ND	ND
17	Waterproof ring	ND	ND	ND	ND
18	Black body (PC)	ND	ND	ND	ND
19	Black body (PC)	ND	ND	ND	ND
20	Black body (PC)	ND	ND	ND	ND
21	Black body (PC)	ND	ND	ND	ND
22	Black body (PC)	ND	ND	ND	ND
23	Blue body (PC)	ND	ND	ND	ND
24	Black body (PC)	ND	ND	ND	ND
25	silvery metal	ND	ND	ND	ND
26	silvery metal	ND	ND	ND	ND
27	silvery metal	ND	ND	ND	ND
28	Silver metal	ND	ND	ND	ND
29	Silver metal	ND	ND	ND	ND
30	Silver metal	ND	ND	ND	ND
31	Silver metal	ND	ND	ND	ND
32	silvery metal	ND	ND	ND	ND
33	Silver metal	ND	ND	ND	ND
34	Silver metal	ND	ND	ND	ND

No.	Specimen Description	Result(s)			
		DIBP	DEHP	DBP	BBP
35	Silver metal	ND	ND	ND	ND
36	Silver metal	ND	ND	ND	ND
37	Core	ND	ND	ND	ND
38	Yellow belt	ND	ND	ND	ND
39	Core	ND	ND	ND	ND
40	Core	ND	ND	ND	ND
41	Black plastic	ND	ND	ND	ND
42	White plastic	ND	ND	ND	ND
43	Black plastic	ND	ND	ND	ND
44	casing	ND	ND	ND	ND
45	silvery metal	ND	ND	ND	ND
46	Blue casing	ND	ND	ND	ND
47	Core	ND	ND	ND	ND
48	White plastic	ND	ND	ND	ND
49	Blue plastic	ND	ND	ND	ND
50	Black plastic	ND	ND	ND	ND
51	Core	ND	ND	ND	ND
52	Black plastic	ND	ND	ND	ND
53	Green Plastic	ND	ND	ND	ND
54	Solder	ND	ND	ND	ND
55	Blue plastic	ND	ND	ND	ND
56	Pink Plastic	ND	ND	ND	ND
57	Power shell	ND	ND	ND	ND
58	Power Shell	ND	ND	ND	ND
59	Power shell	ND	ND	ND	ND
60	Power Shell	ND	ND	ND	ND
MDL		0.005%	0.005%	0.005%	0.005%
Permissible Limit		0.1%	0.1%	0.1%	0.1%

Note:
- % = percentage by weight
- MDL = Method Detection Limit
- ND = Not Detected (lower than MDL)
- 1% = 10000 mg/kg = 10000 ppm
- The maximum permissible limit is quoted from the EU Directive 2011/65/EU Annex II

1.3 EU Directive 2011/65/EU (RoHS 2.0) - Wet Chemical PBBs & PBDEs Content

Method: With reference to IEC 62321-6:2015
Analysis was performed by Gas Chromatography Mass Spectrometer (GC-MS)

Test Item(s)	No.3	No.57	No.59	MDL	Permissible
Sum of PBBs	**ND**	**ND**	**ND**	--	0.1
Monobromobiphenyl	ND	ND	ND	0.0004	--
Dibromobiphenyl	ND	ND	ND	0.0004	--
Tribromobiphenyl	ND	ND	ND	0.0004	--
Tetrabromobiphenyl	ND	ND	ND	0.0004	--
Pentabromobiphenyl	ND	ND	ND	0.0004	--
Hexabromobiphenyl	ND	ND	ND	0.0004	--
Heptabromobiphenyl	ND	ND	ND	0.0004	--
Octabromobiphenyl	ND	ND	ND	0.0004	--
Nonabromobiphenyl	ND	ND	ND	0.0004	--
Decabromobiphenyl	ND	ND	ND	0.0004	--
Sum of PBDEs	**ND**	**ND**	**ND**	--	0.1
Monobromodiphenyl	ND	ND	ND	0.0004	--
Dibromodiphenyl ether	ND	ND	ND	0.0004	--
Tribromodiphenyl ether	ND	ND	ND	0.0004	--
Tetrabromodiphenyl	ND	ND	ND	0.0004	--
Pentabromodiphenyl	ND	ND	ND	0.0004	--
Hexabromodiphenyl	ND	ND	ND	0.0004	--
Heptabromodiphenyl	ND	ND	ND	0.0004	--
Octabromodiphenyl	ND	ND	ND	0.0004	--
Nonabromodiphenyl	ND	ND	ND	0.0004	--
Decabromodiphenyl	ND	ND	ND	0.0004	--

Specimen Description:

No.3 Power shell

No.57 Power shell

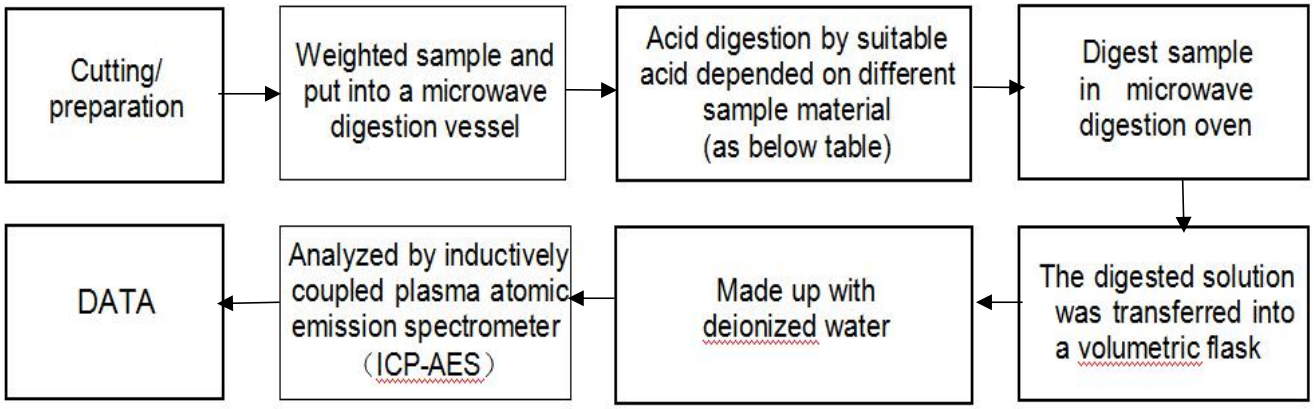
No.59 Power shell

Note:
- % = percentage by weight
- MDL = Method Detection Limit
- ND = Not Detected (lower than MDL)
- 1% = 10000 mg/kg = 10000 ppm
- The maximum permissible limit is quoted from the EU Directive 2011/65/EU Annex II

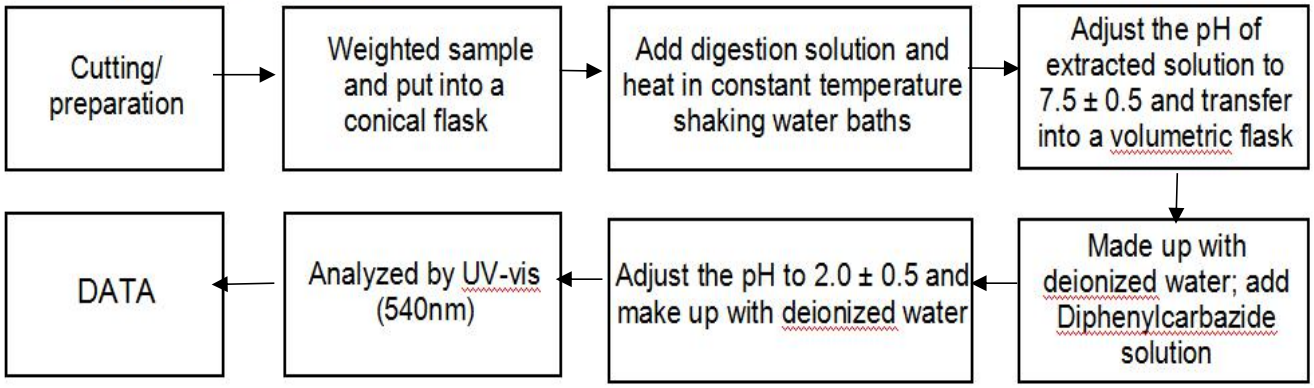
Test Flow chart

1. Test Flowchart for Cd / Pb /Hg content

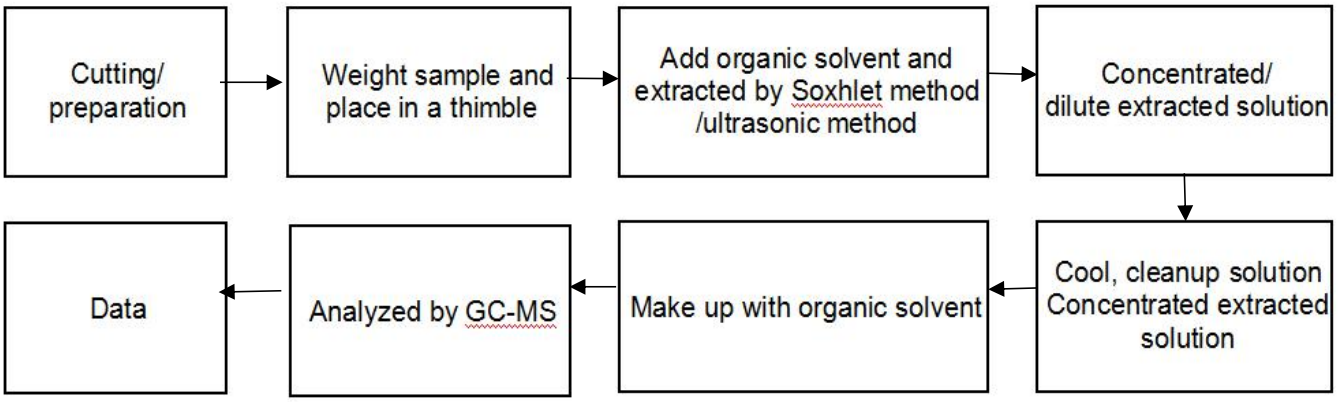
These samples were dissolved totally by pre-conditioning method according to below flow chart.



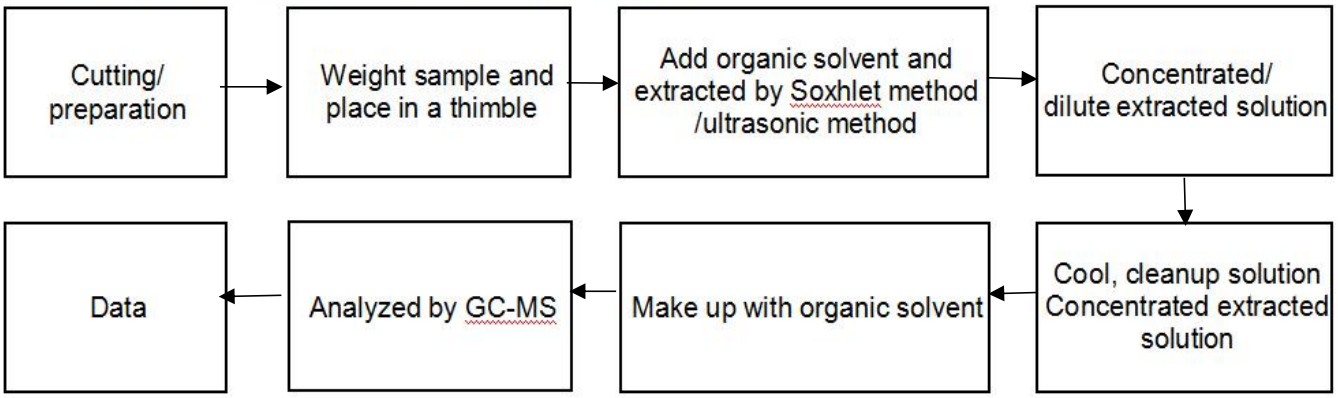
2. Test Flowchart for Cr^{6+} content



3. Test Flowchart for PBBs & PBDEs content

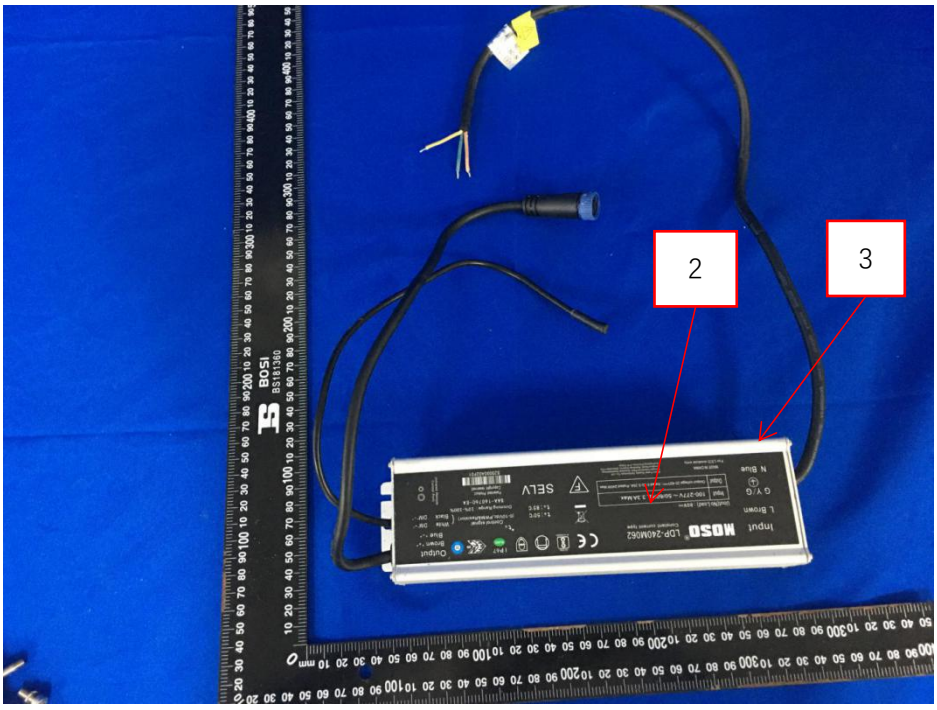


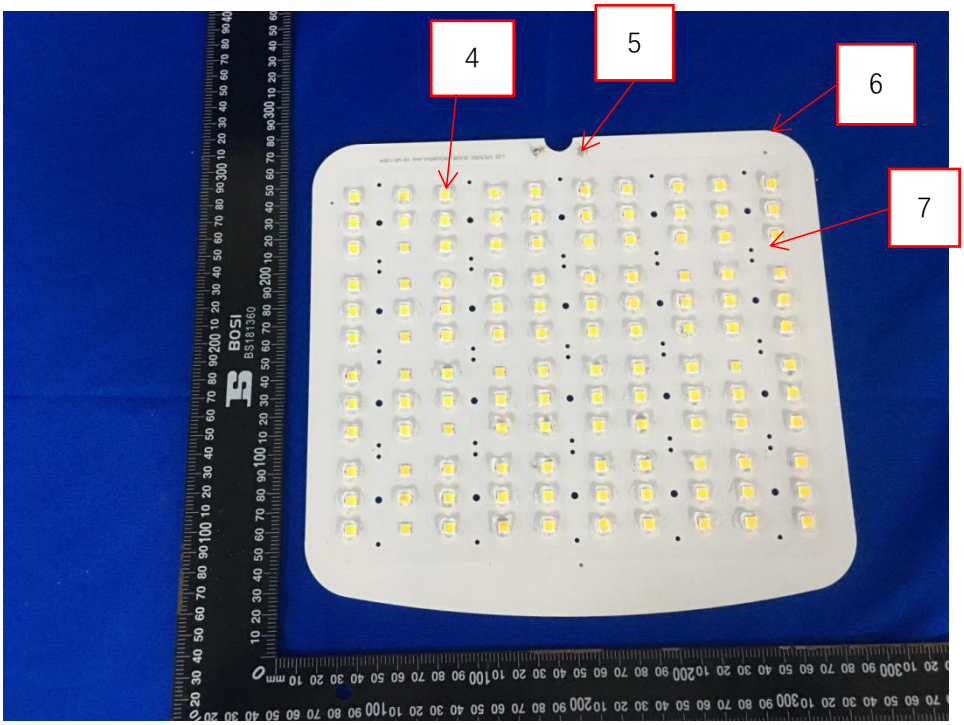
4. Test Flowchart for DEHP, BBP, DBP & DIBP content



Sample material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

PHOTO OF THE SAMPLE

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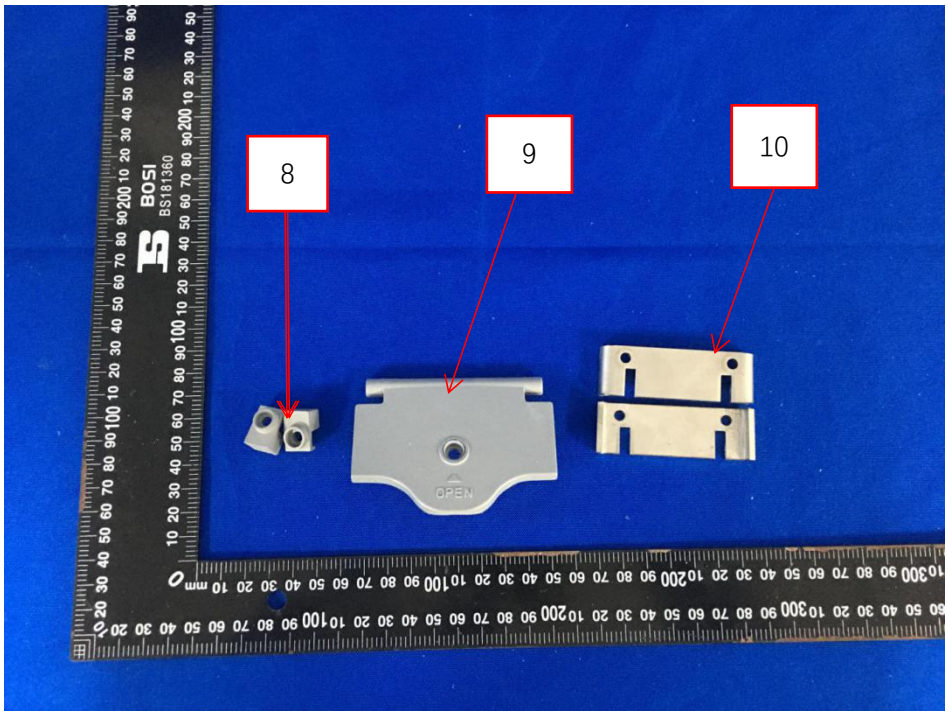
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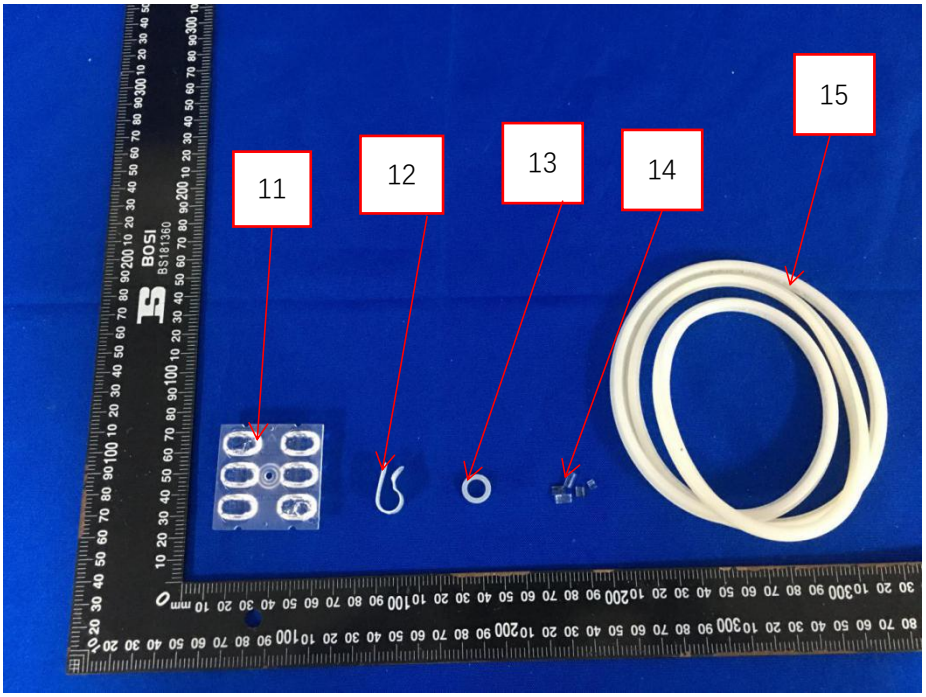
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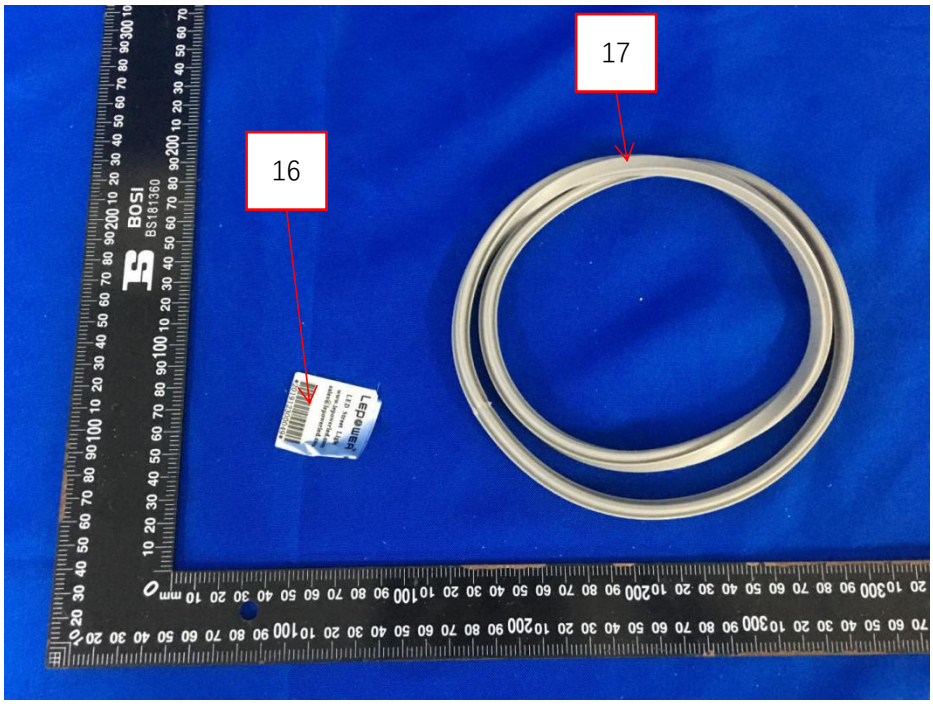
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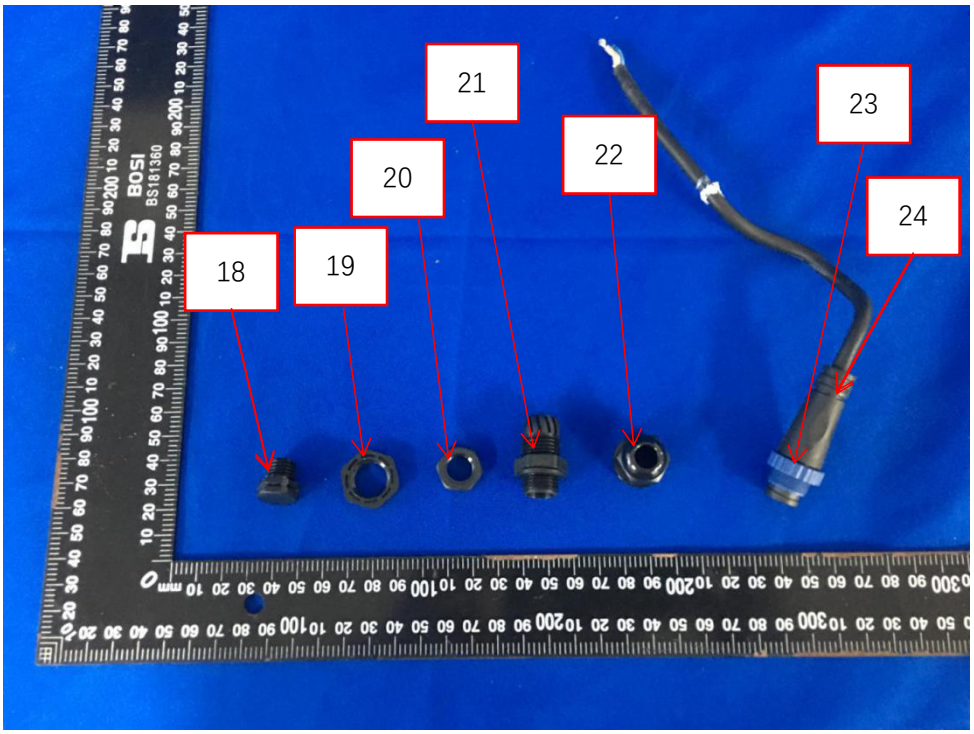
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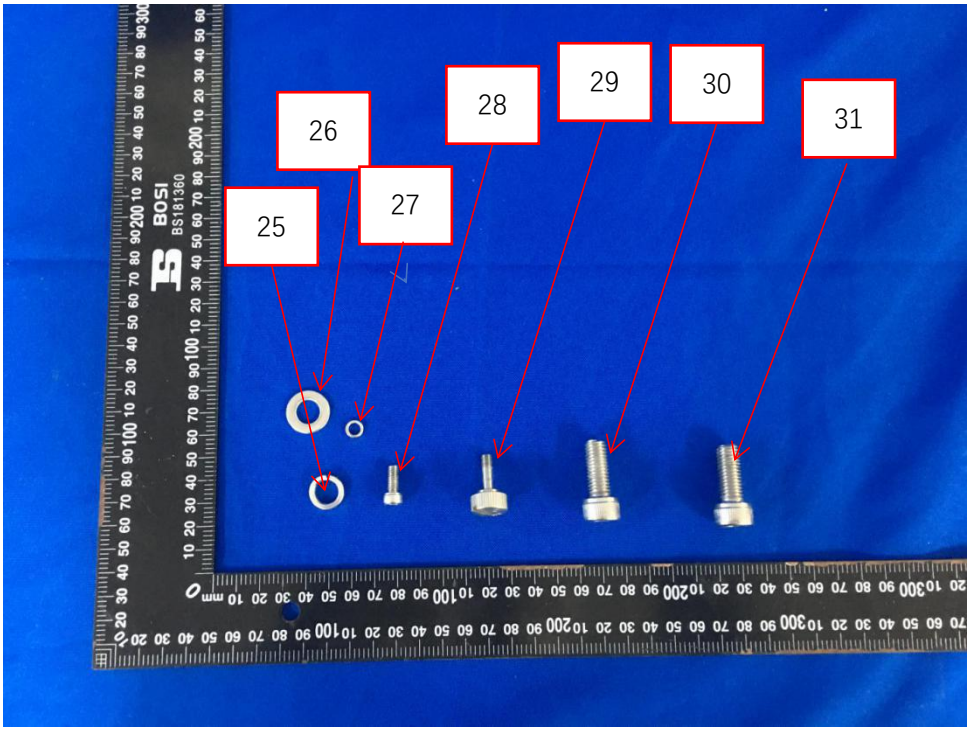
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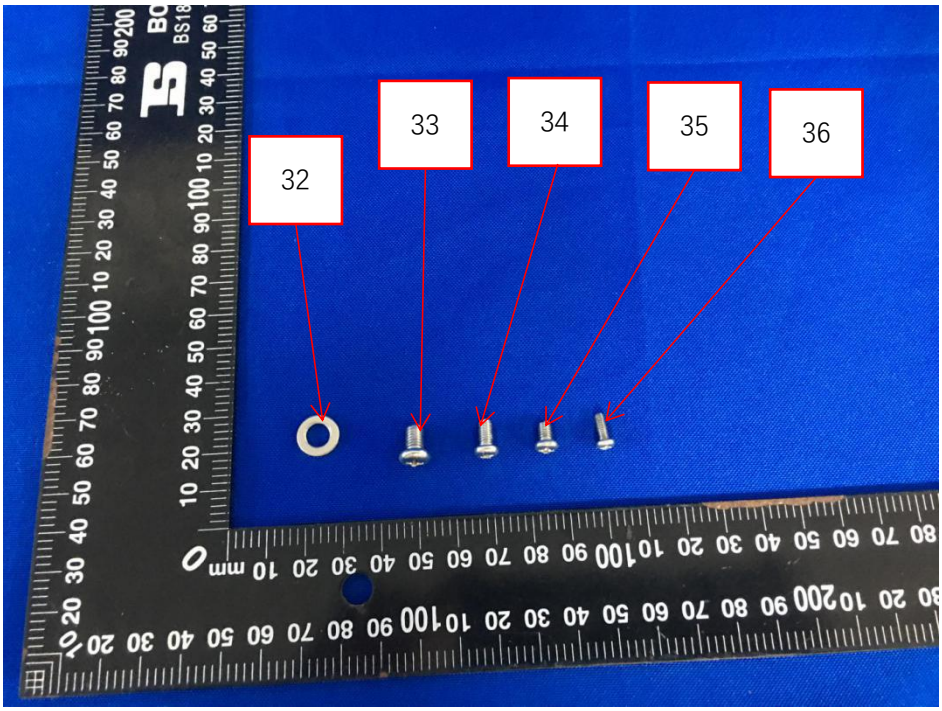
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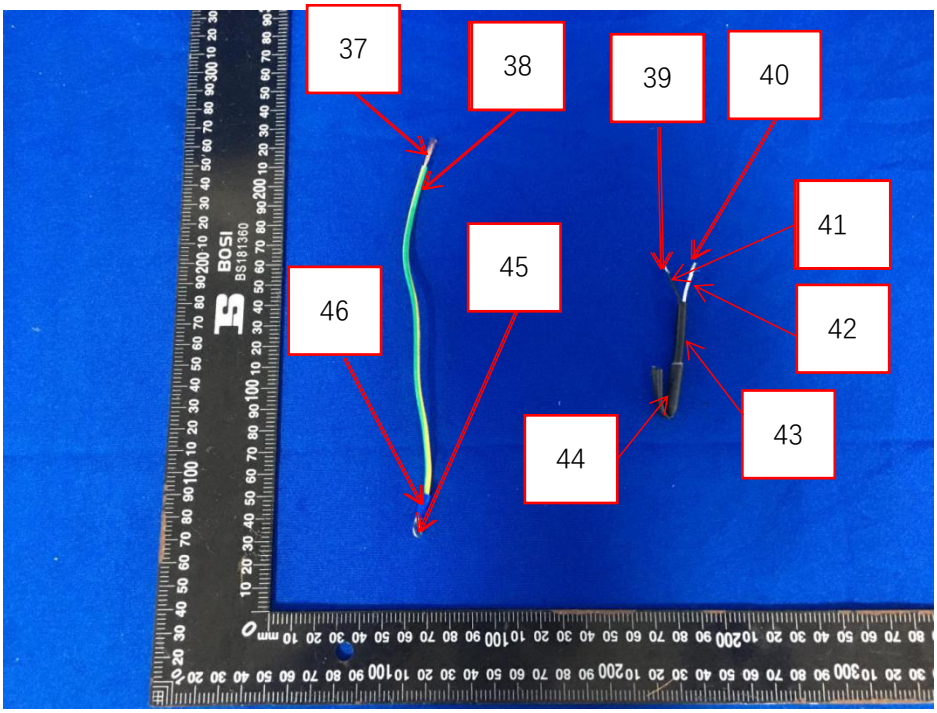
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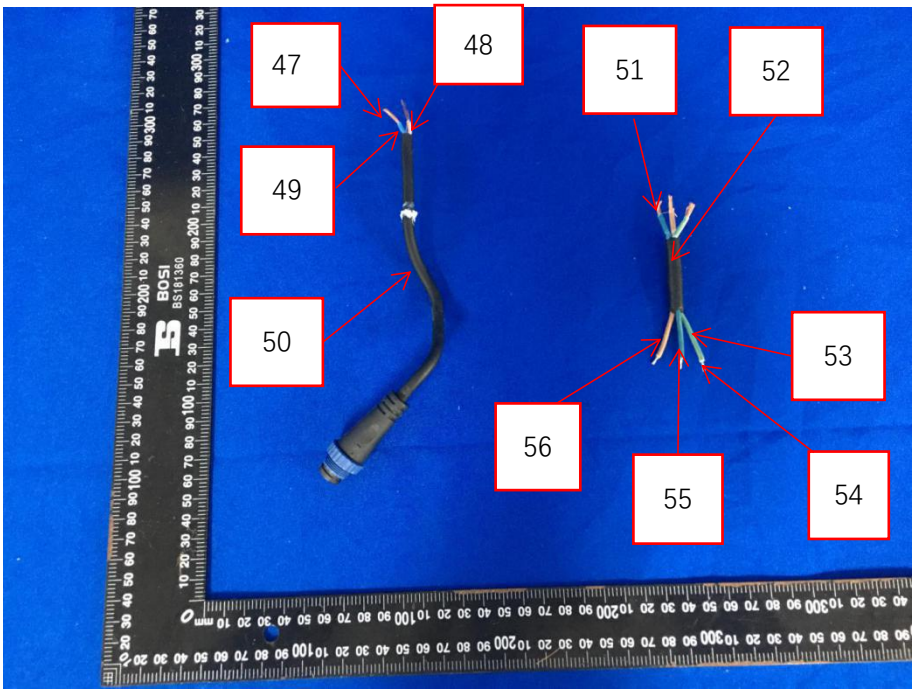
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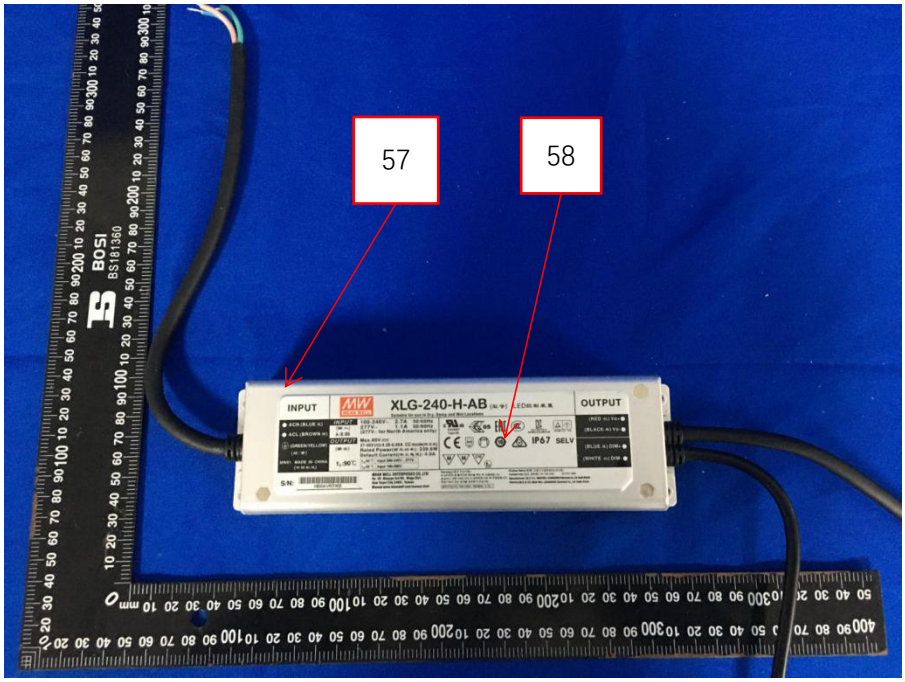
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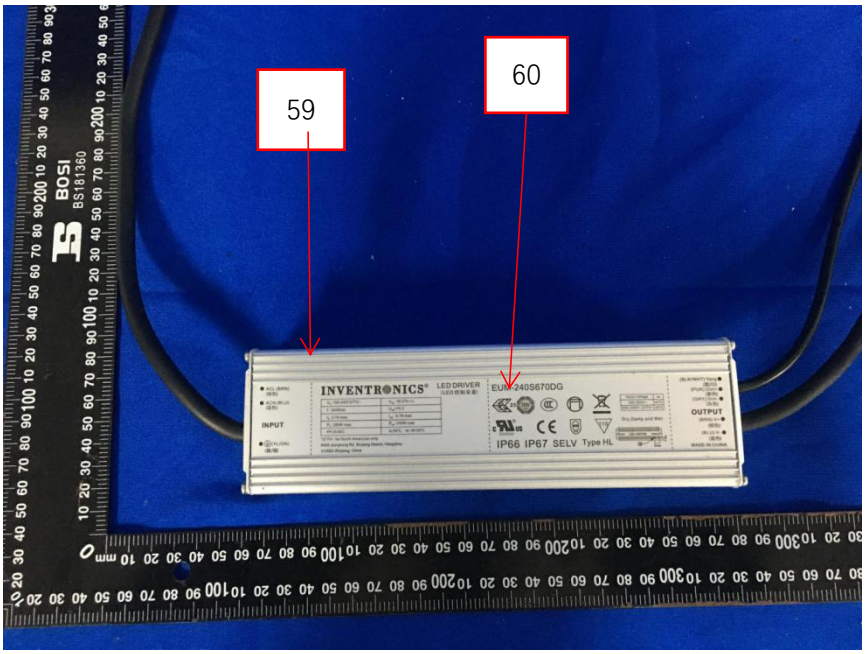
XLG-240-H-AB
OUTPUT
IP67
SELV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INVENTRONICS
LED DRIVER
EUM-240S670DG
INPUT
OUTPUT
IP66 IP67 SELV Type HL
BOSI
BS181360

--- END OF REPORT ---