ROHS TEST REPORT

Report Reference No	:	DER008022079455
Applicant	:	Alp Green Solutions BV
Address	:	Leursebaan 266, 4814 RE Breda Nederland

Report on the submitted sample said to be:

Product Name	:	LED Highbay Light
Trade Mark	:	TOCHLIGHTING
Model No.	:	ALP Easy highbay UFO-x ("x" is variable, can be 60, 80, 100, 120, 160, 200, 240)
Manufacturer	:	Shenzhen Tochlighting Technology Co.,Ltd
Address	:	4/F, Building A, Qiaotong Industrial Park, Yuanling area, Shiyan street, Bao'an district, Shenzhen, China.
Sample Received Date	:	November 28,2023
Testing Period	:	November 28,2023 to November 29,2023
Test location	:	Shenzhen DE Certification Lab co., Ltd. Room 202, Building 3, Xin Nan Tian Industrial Area, No.106, Dan Zi Road, Lao Keng Community, Long Tian Street, Ping Shan District, Shenzhen

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Summary of Test Results:

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	:	Zongxia	**Reviewed by**	:	Evan Zhang
Approved by	:	Taylor	**Date**	:	January 11, 2024

General product information and other remarks:

Product: LED Flood Light

Model list

Model No.	Input current(A)	Power (W)	Size(mm)	LED Qty. (Pcs)	LED driver type
ALP Easy highbay UFO-60	0,240	60	D350*W177mm	320	SS-120CNL-E260BHB
ALP Easy highbay UFO-80	0,380	80			
ALP Easy highbay UFO-100	0,480	100			
ALP Easy highbay UFO-120	0,580	120	D400*W197mm	640	SS-200CNL-E260BHB
ALP Easy highbay UFO-160	0,720	160			
ALP Easy highbay UFO-200	0,970	200			
ALP Easy highbay UFO-80	0,380	80	D350*W177mm	320	SS-80CNL-E260
ALP Easy highbay UFO-100	0,480	100			SS-100CNL-E260B
ALP Easy highbay UFO-120	0,580	120	D400*W197mm	640	SS-120CNL-E260B
ALP Easy highbay UFO-160	0,720	160			SS-160CNL-E260B
ALP Easy highbay UFO-200	0,970	200			SS-200CNL-E260B
ALP Easy highbay UFO-240	1,160	240	D400*W197mm	800	SS-240CNL-E260B

Remarks: All models have the same material and the LED lamp beads are the same, so model ALP Easy highbay UFO-240 is selected for testing.

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 nut	BL	BL	BL	BL	BL
2	Black screw	BL	BL	BL	BL	BL
3	Ferrous metal case	BL	BL	BL	BL	BL
4	metal screw	BL	BL	BL	BL	BL
5	Black line	BL	BL	BL	BL	BL
6	ferrous metal	BL	BL	BL	BL	BL
7	white silicone	BL	BL	BL	BL	BL
8	White metal	BL	BL	BL	BL	BL
9	Ferrous metal case	BL	BL	BL	BL	BL
10	Black plastic	BL	BL	BL	BL	BL
11	label	BL	BL	BL	BL	BL
12	Black line	BL	BL	BL	BL	BL
13	Yellow and green line	BL	BL	BL	BL	BL
14	Blue line	BL	BL	BL	BL	BL
15	Brown line	BL	BL	BL	BL	BL
16	Tin	BL	BL	BL	BL	BL
17	Black plastic	BL	BL	BL	BL	BL
18	Red line	BL	BL	BL	BL	BL
19	Purple line	BL	BL	BL	BL	BL
20	Black line	BL	BL	BL	BL	BL
21	screw	BL	BL	BL	BL	BL
22	LED	BL	BL	BL	BL	BL
23	PCB	BL	BL	BL	BL	BL
24	Blue line	BL	BL	BL	BL	BL
25	Brown line	BL	BL	BL	BL	BL
26	white plastic	BL	BL	BL	BL	BL
27	White glue	BL	BL	BL	BL	BL

Note:	BL	Below Limit by XRF analysis
	OL	= Over Limit by XRF analysis
	IN	= Inconclusive
	NC	= Undetected
	1%	= 10000 mg/kg = 10000 ppm

Note:	(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

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

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)

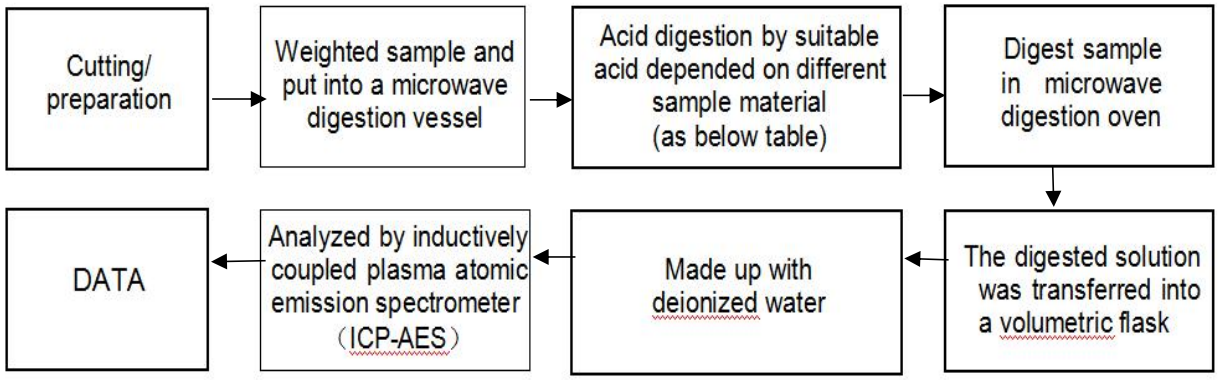
No.	Specimen Description	Result(s)			
		DIBP	DEHP	DBP	BBP
1	Silver metal nut	ND	ND	ND	ND
2	Black screw	ND	ND	ND	ND
3	Ferrous metal case	ND	ND	ND	ND
4	metal screw	ND	ND	ND	ND
5	Black line	ND	ND	ND	ND
6	ferrous metal	ND	ND	ND	ND
7	white silicone	ND	ND	ND	ND
8	White metal	ND	ND	ND	ND
9	Ferrous metal case	ND	ND	ND	ND
10	Black plastic	ND	ND	ND	ND
11	label	ND	ND	ND	ND
12	Black line	ND	ND	ND	ND
13	Yellow and green line	ND	ND	ND	ND
14	Blue line	ND	ND	ND	ND
15	Brown line	ND	ND	ND	ND
16	Tin	ND	ND	ND	ND
17	Black plastic	ND	ND	ND	ND
18	Red line	ND	ND	ND	ND
19	Purple line	ND	ND	ND	ND
20	Black line	ND	ND	ND	ND
21	screw	ND	ND	ND	ND
22	LED	ND	ND	ND	ND
23	PCB	ND	ND	ND	ND
24	Blue line	ND	ND	ND	ND
25	Brown line	ND	ND	ND	ND
26	white plastic	ND	ND	ND	ND
27	White glue	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

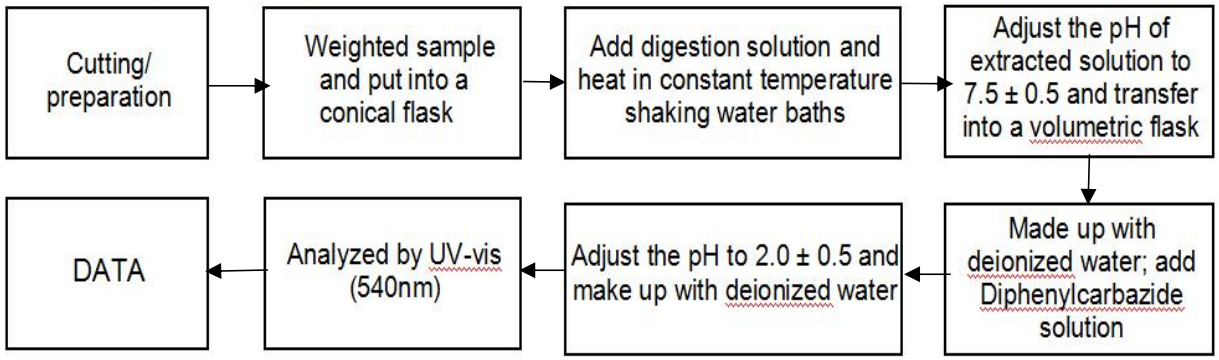
Test Flow chart

1. Test Flowchart for Cd / Pb /Hg content

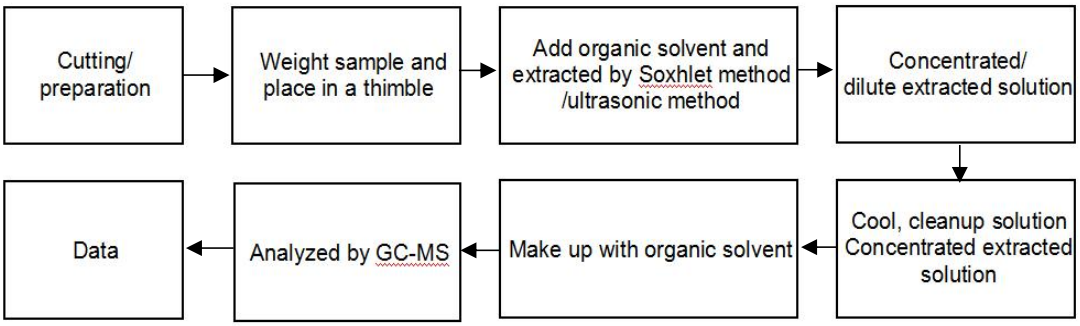
These samples were dissolved totally by pre-conditioning method according to below flow chart.



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



3. Test Flowchart for PBBs & PBDEs content



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

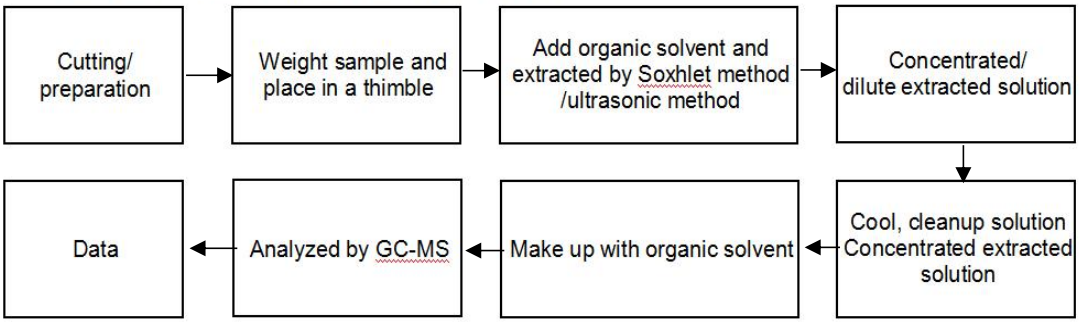


Table:

	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 MAIN TEST SAMPLE

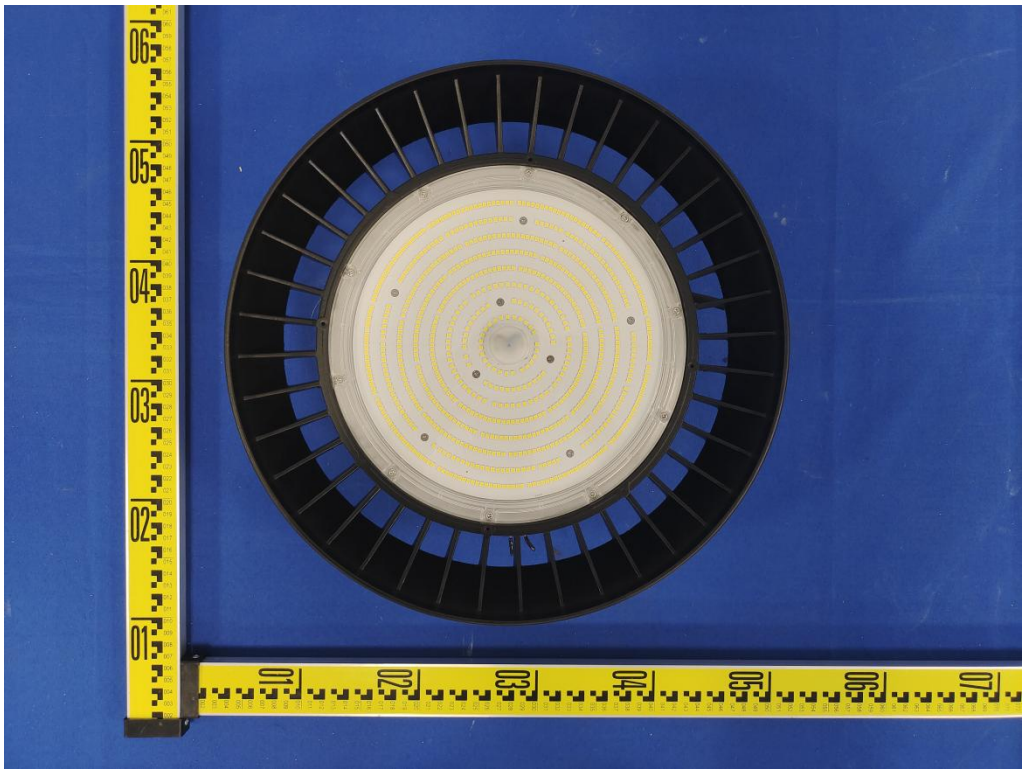


Fig. 1 - Front view

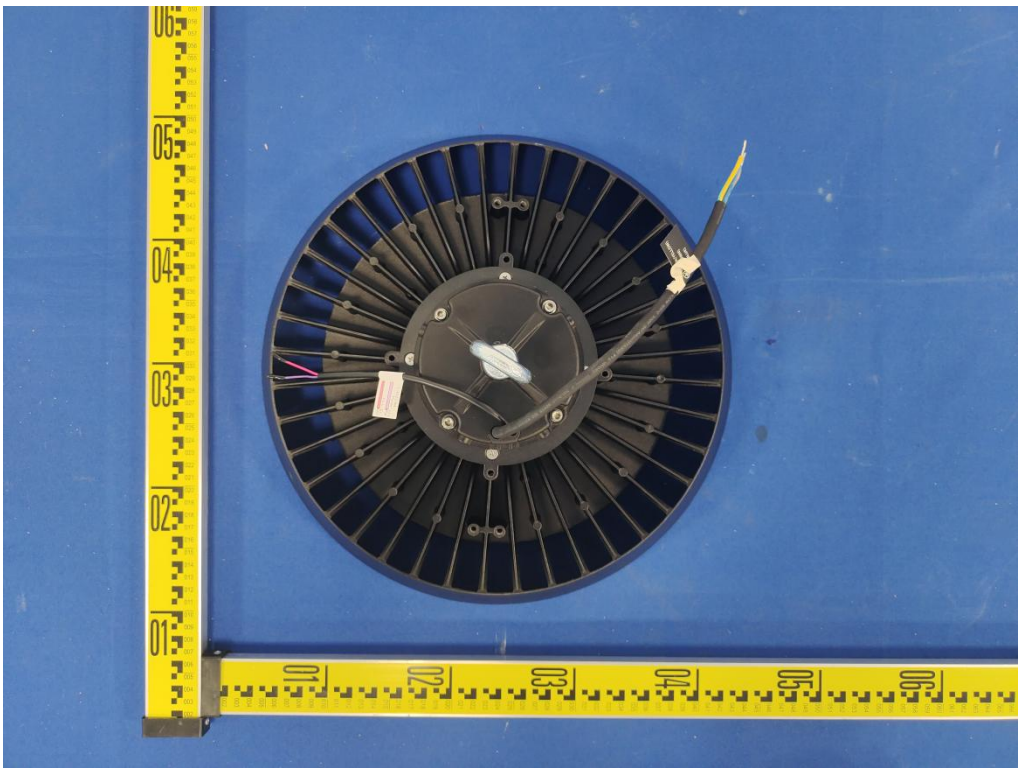


Fig. 2 - Back view

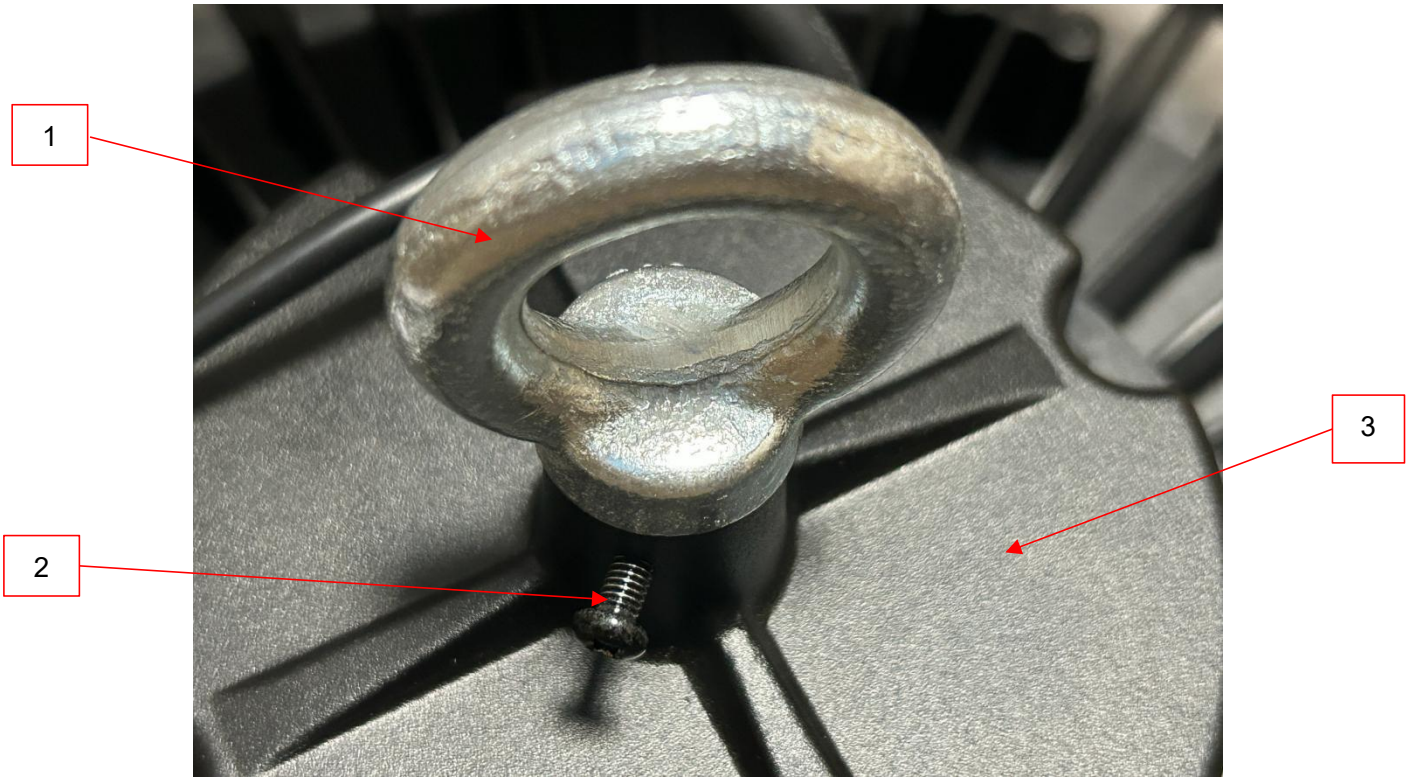


Fig. 3 - Overall picture view

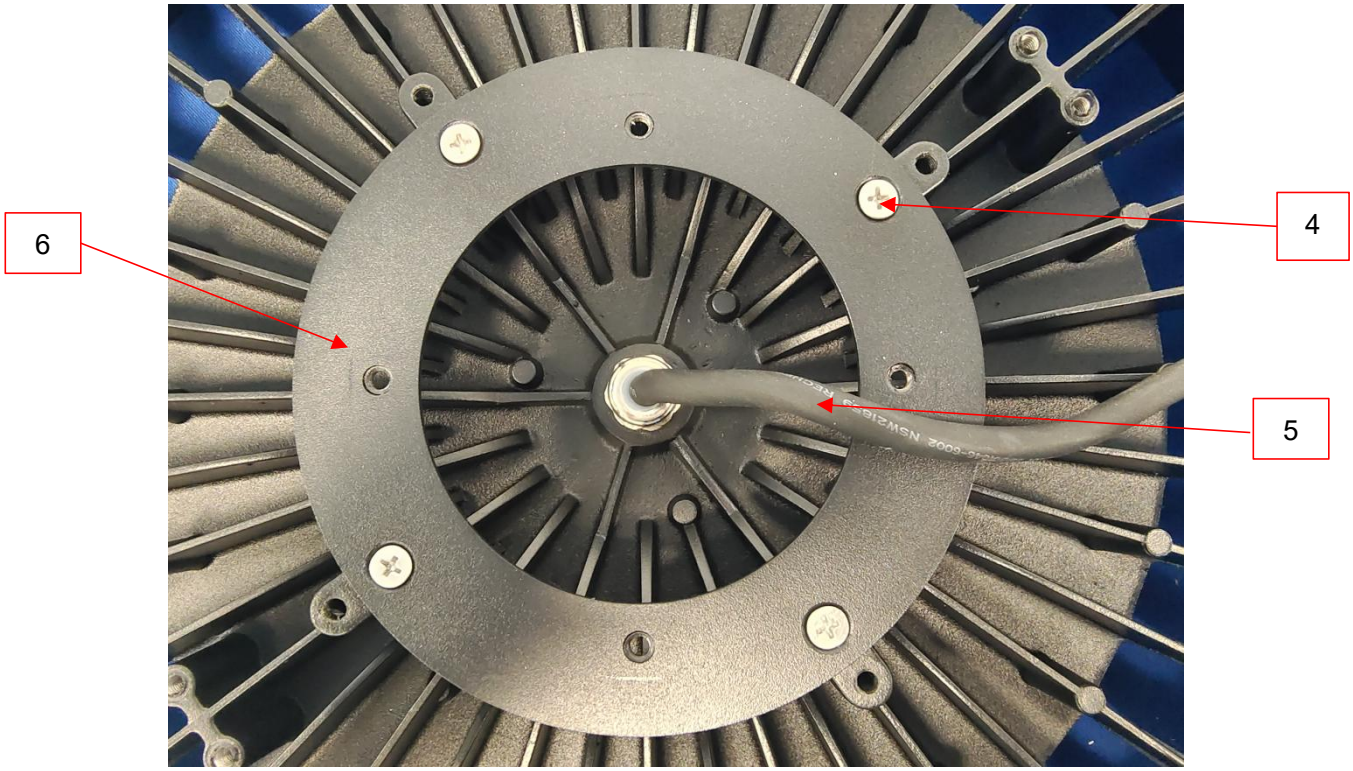


Fig. 4 - Overall picture view

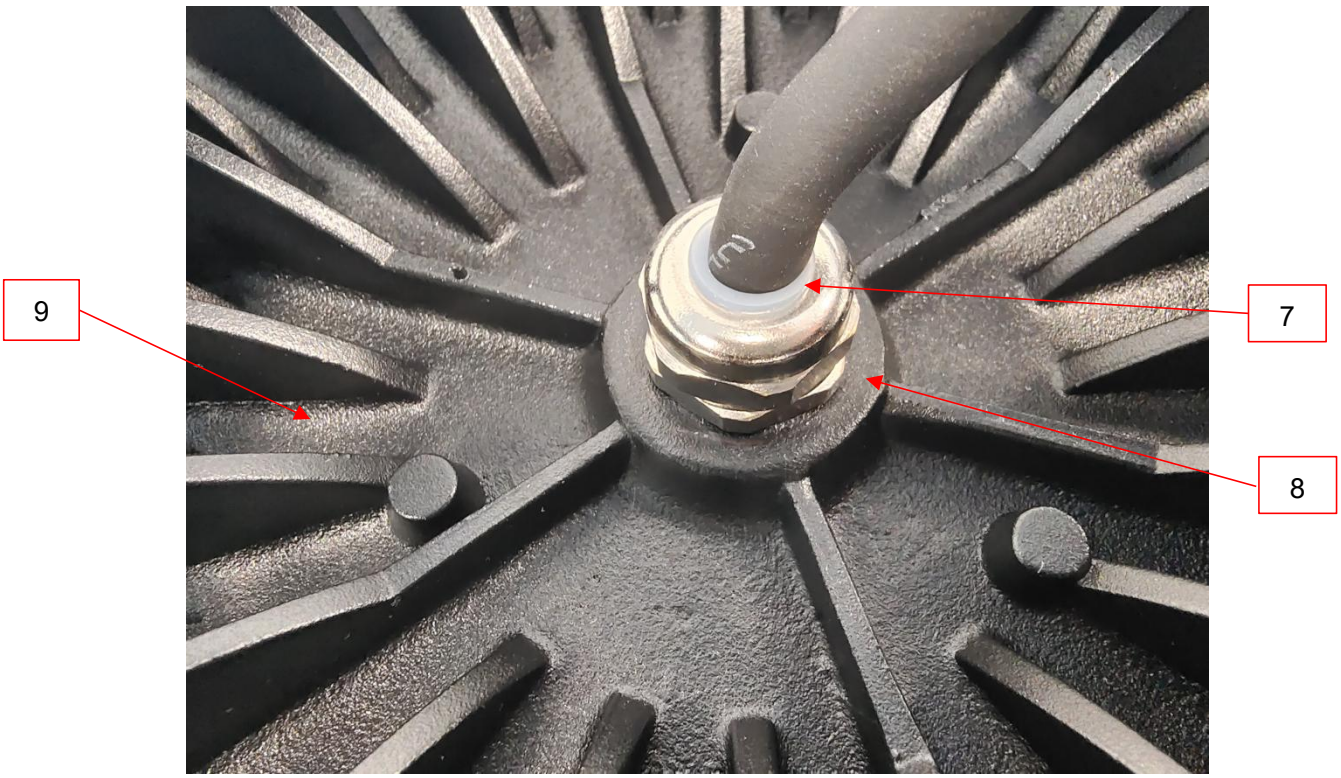


Fig. 5 - Overall picture view

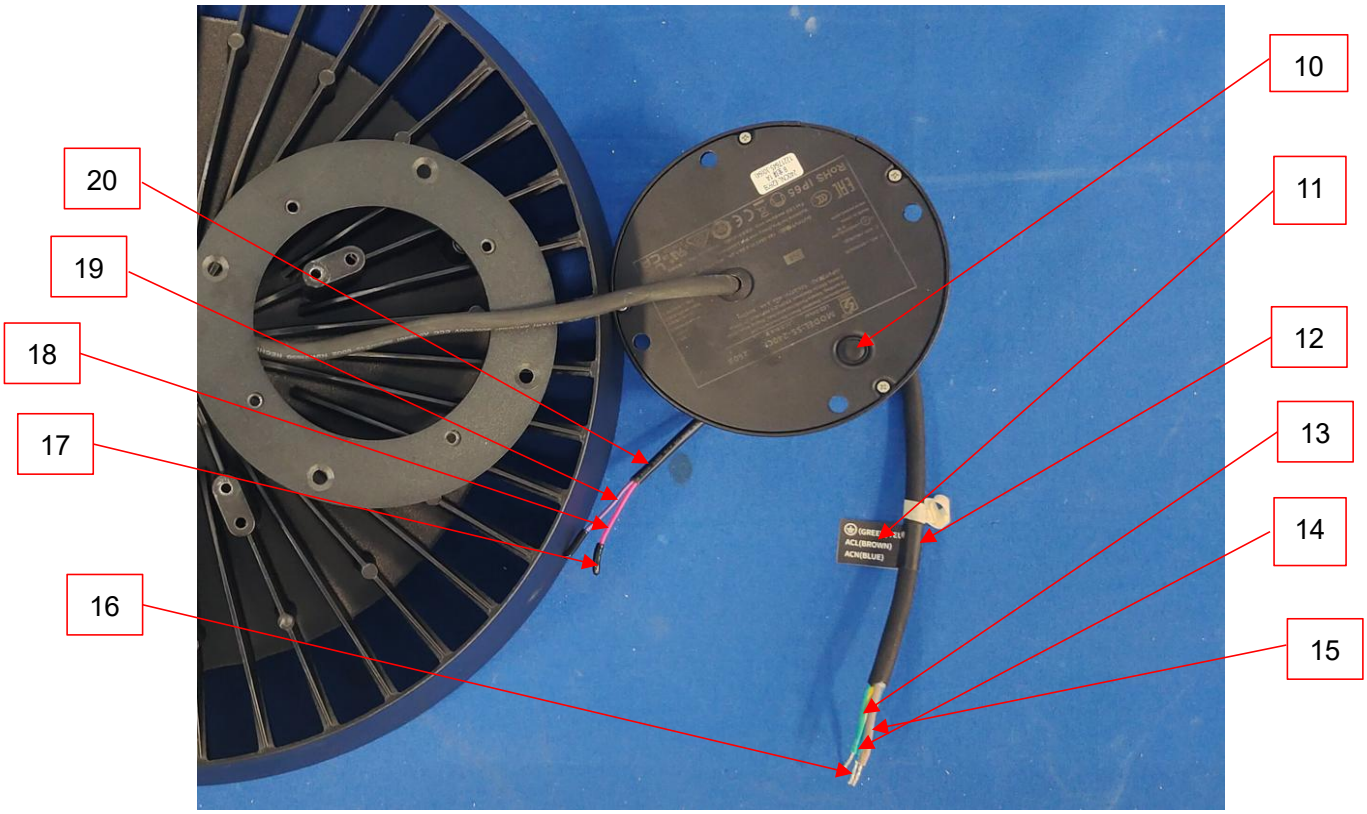


Fig. 6 - Overall picture view

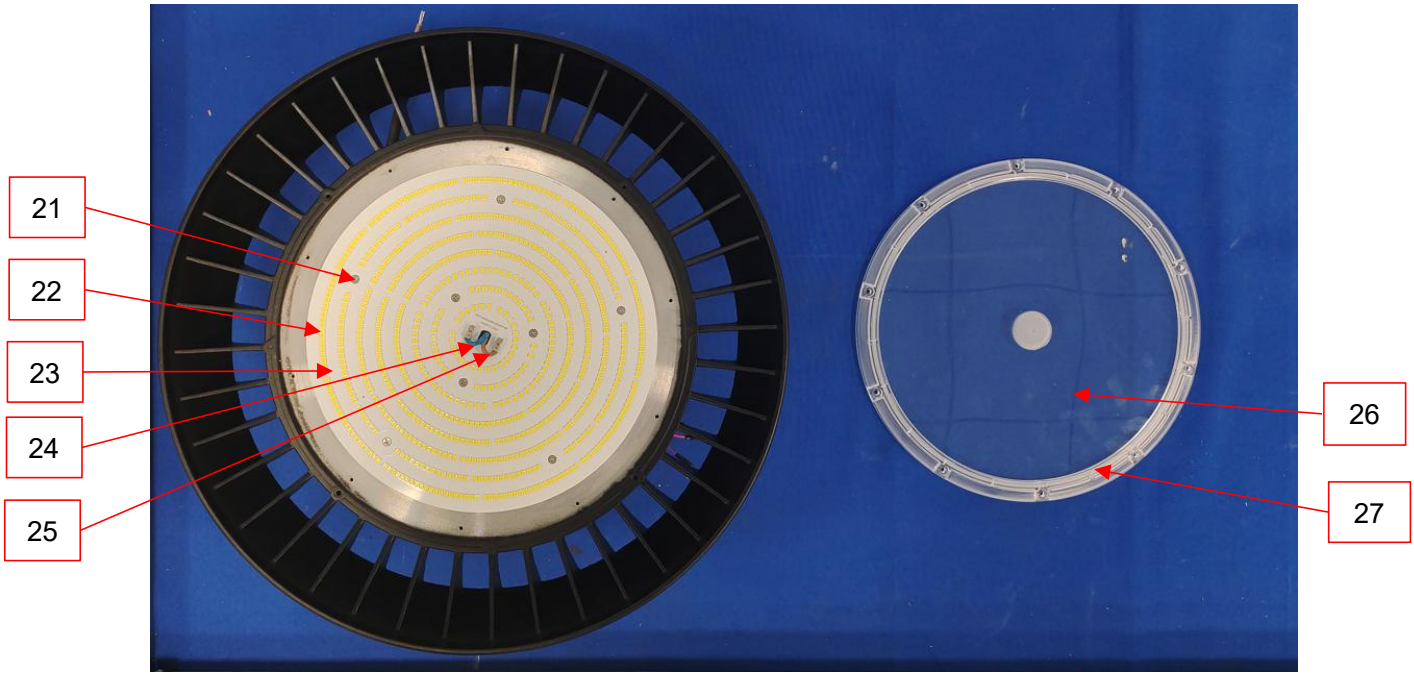


Fig. 7 - Overall picture view

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