

Photometric Test Report

Relevant Standards

- ☒ IES LM-79-2008
- ☒ ANSI C82.77:2017

Prepared For

RAB Lighting Inc.

Room 6A33, No.1388, Wuzhong road, Shanghai, China

Xiao Xiang, 15921313292, Gary.Xiao@rabweb.com

Prepared By

Deliver Co., Ltd.

Block 11, 78 Keling Road, SSTP, Suzhou, China

0512-66801950, kevin.jia@szdeliver.com

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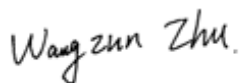
Test Date

2023/1/13

Issue Date

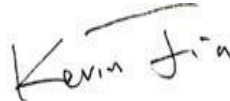
2023/1/16

Prepared By



Wangzun Zhu

Approved By



Kevin Jia

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1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Pole/Arm-Mounted Area and Roadway Luminaires				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1000		12989
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	141.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		92.1
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%		16.72%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9		0.901
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3045±175	2942
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		82
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40		3
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		83
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		98
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	100%		100.00%
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%		0.17%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		480
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.213
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		92.1

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2023/1/13	ALEDMATY/480	AB1
2	Goniophotometer Test	2023/1/13	ALEDMATY/480	AB1
3	THD and PF Test	2023/1/13	ALEDMATY/480	AB1

Remark(If any)

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- 2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

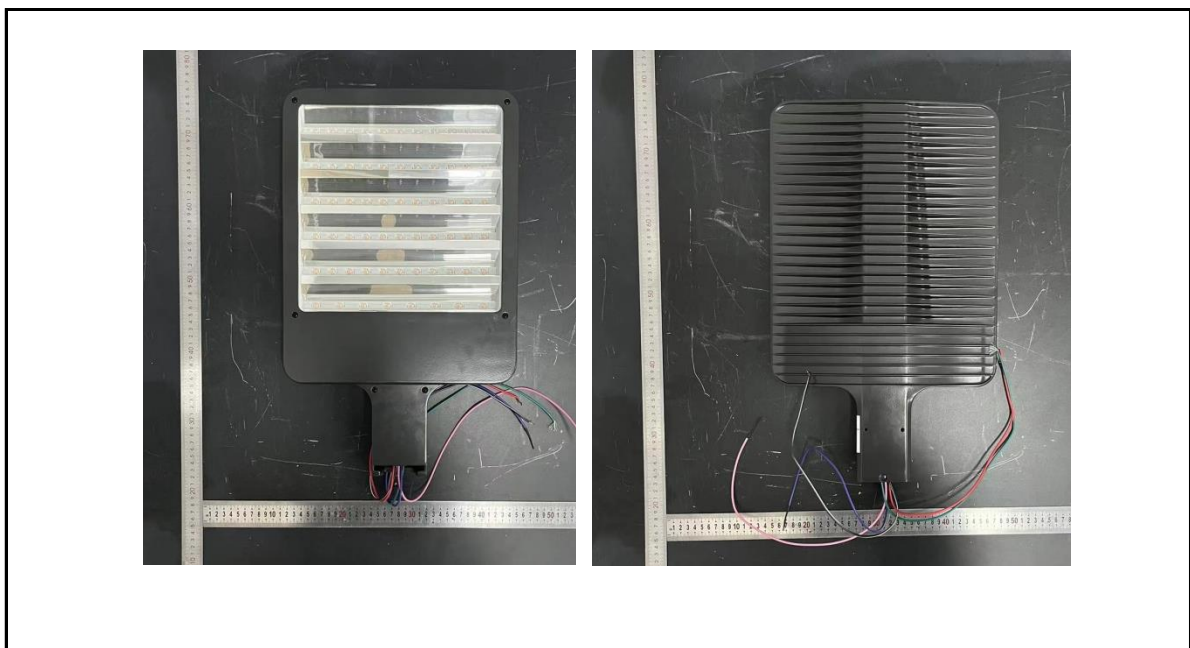
3.0 Production Description

Luminaire Description: ALEDMATY/480

Description: 90W @ 3000K

Electrical Specification: 480V,50/60HZ

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	ALEDMATY/480	Sample ID.	AB1
Opreate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The sample was measured using 4π geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
480.00	60	0.213	92.1	0.901

Test Result

CCT (K)	CRI	R9	Duv
2942	82	3	0.0022

Rf	Rg	IES Rcs,h1
83	98	-12%

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	ALEDMATY/480	Sample ID.	AB1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 10° horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	480.00	60	0.213	92.1	0.901

Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
12989	93.0	153.9	40.2	136.3	141.0

Zonal Lumen Requirement (0° - 90°)	Zonal Lumen Requirement (80° - 90°)	BUG rating
100.00%	0.17%	B2-U0-G1

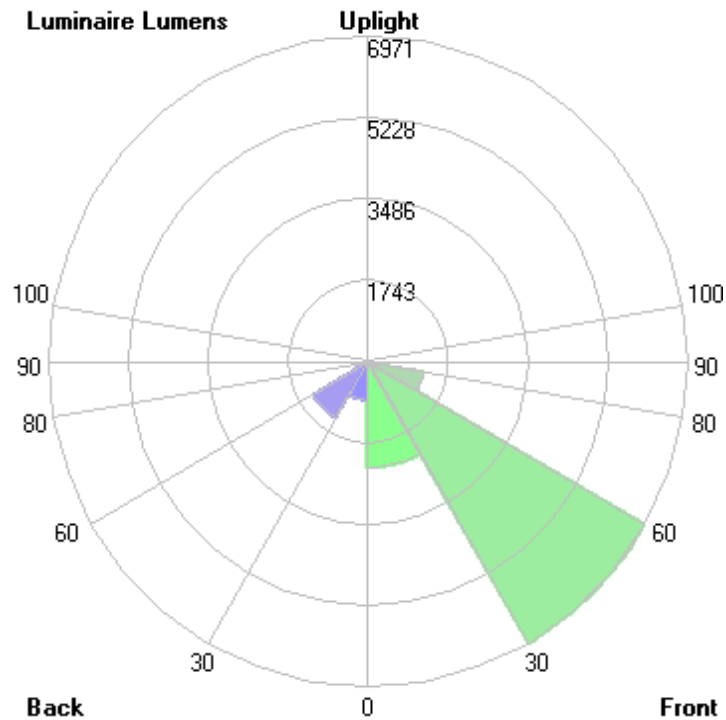
4.2 Goniophotometer Test

Zonal Lumen Summary

	Zonal (lm)		Total (lm)	Percent
0-10	287.10	0 - 10	287.10	2.21%
10-20	984.00	0 - 20	1271.10	9.79%
20-30	1846.02	0 - 30	3117.12	24.00%
30-40	2790.58	0 - 40	5907.70	45.48%
40-50	3051.24	0 - 50	8958.94	68.97%
50-60	2519.18	0 - 60	11478.12	88.37%
60-70	1249.5	0 - 70	12727.62	97.99%
70-80	239.87	0 - 80	12967.49	99.83%
80-90	21.50	0 - 90	12988.99	100.00%
90-100	0.00	0 - 100	12988.99	100.00%
100-110	0.00	0 - 110	12988.99	100.00%
110-120	0.00	0 - 120	12988.99	100.00%
120-130	0.00	0 - 130	12988.99	100.00%
130-140	0.00	0 - 140	12988.99	100.00%
140-150	0.00	0 - 150	12988.99	100.00%
150-160	0.00	0 - 160	12988.99	100.00%
160-170	0.00	0 - 170	12988.99	100.00%
170-180	0.00	0 - 180	12988.99	100.00%

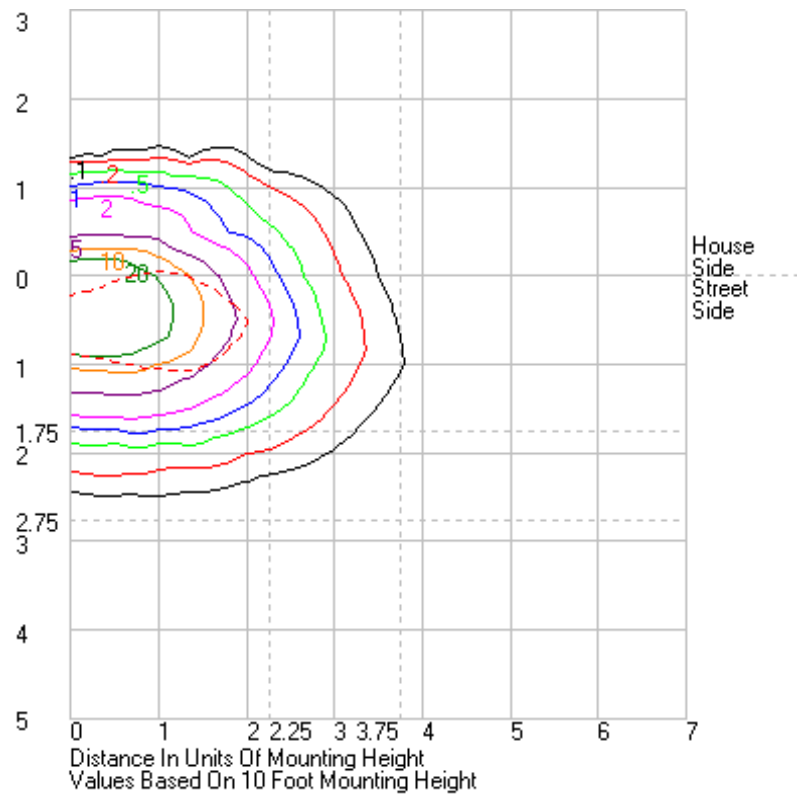
4.2 Goniophotometer Test

LCS/BUG



	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	2286.9	N.A.	17.6
FM - Front-Medium (30-60)	6971.2	N.A.	53.7
FH - Front-High (60-80)	1231.4	N.A.	9.5
FVH - Front-Very High (80-90)	16.6	N.A.	0.1
BL - Back-Low (0-30)	830.2	N.A.	6.4
BM - Back-Medium (30-60)	1389.8	N.A.	10.7
BH - Back-High (60-80)	258.0	N.A.	2.0
BVH - Back-Very High (80-90)	4.9	N.A.	0.0
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	12989.0	N.A.	100.0
BUG Rating	B2-U0-G1		

Isolines



4.2 Goniophotometer Test

	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360
0	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87	2737.87
1	2858.69	2865.1	2853.92	2835.62	2811.06	2784.47	2753.97	2723.52	2693.53	2667.15	2646.17	2631.13	2620.75	2631.13	2646.17	2667.15	2693.53	2723.52	2753.97	2784.47	2811.06	2835.62	2853.92	2865.1	2858.69
2	2994.08	2990.08	2969.87	2933.52	2887.15	2831	2769.93	2708.69	2648.96	2598.59	2561.09	2536.67	2523.47	2536.67	2561.09	2598.59	2648.96	2708.69	2769.93	2831	2887.15	2933.52	2969.87	2990.08	2994.08
3	3146.55	3144.44	3107.59	3049.04	2971.47	2886.14	2792.92	2700.15	2612.7	2540.8	2487.51	2455.17	2445.6	2455.17	2487.51	2540.8	2612.7	2700.15	2792.92	2886.14	2971.47	3049.04	3107.59	3144.44	3146.55
4	3307.47	3299.78	3251	3171.41	3066.4	2948.05	2823.23	2699.08	2585.45	2499.48	2443.34	2412.83	2405	2412.83	2443.34	2499.48	2585.45	2699.08	2823.23	2948.05	3066.4	3171.41	3251	3299.78	3307.47
5	3480.71	3468.17	3410.31	3306.75	3170.65	3016.98	2859.61	2704.21	2569.76	2476.44	2424.79	2391.65	2382.02	2391.65	2424.79	2476.44	2569.76	2704.21	2859.61	3016.98	3170.65	3306.75	3410.31	3468.17	3480.71
6	3651.59	3644.32	3576.9	3452.94	3279.33	3088.46	2897.63	2713.19	2563.25	2472.92	2413.95	2368.97	2354.67	2368.97	2413.95	2472.92	2563.25	2713.19	2897.63	3088.46	3279.33	3452.94	3576.9	3644.32	3651.59
7	3822.95	3807.77	3737.28	3599.19	3396.89	3164.48	2938.85	2725.13	2566.74	2479.11	2402.76	2347.18	2327.34	2347.18	2402.76	2479.11	2566.74	2725.13	2938.85	3164.48	3396.89	3599.19	3737.28	3807.77	3822.95
8	4004.38	3991.26	3912.17	3753.82	3514.73	3240.15	2980.12	2739.66	2578.59	2482.01	2388.53	2320.29	2293.97	2320.29	2388.53	2482.01	2578.59	2739.66	2980.12	3240.15	3514.73	3753.82	3912.17	3991.26	4004.38
9	4187.34	4176.42	4089.34	3905.24	3633.09	3314.54	3018.85	2753.49	2592.12	2481.61	2373.14	2279.09	2238.53	2279.09	2373.14	2481.61	2592.12	2753.49	3018.85	3314.54	3633.09	3905.24	4089.34	4176.42	4187.34
10	4370.03	4358.39	4275.89	4064.35	3752.39	3391.69	3058.73	2769.32	2605.93	2480.42	2341.95	2210.22	2155.61	2210.22	2341.95	2480.42	2605.93	2769.32	3058.73	3391.69	3752.39	4064.35	4275.89	4358.39	4370.03
11	4545.54	4547.36	4466.04	4222.74	3870.62	3469.68	3098.98	2786.41	2618.29	2472.39	2284.6	2111.07	2040.11	2111.07	2284.6	2472.39	2618.29	2786.41	3098.98	3469.68	3870.62	4222.74	4466.04	4547.36	4545.54
12	4720.53	4721.72	4646.92	4375.57	3989.54	3550.78	3142.99	2807.41	2628.92	2452.93	2213.73	2002.26	1914.93	2002.26	2213.73	2452.93	2628.92	2807.41	3142.99	3550.78	3989.54	4375.57	4646.92	4721.72	4720.53
13	4911.52	4918.25	4840.83	4546.28	4102.83	3639.28	3191.57	2833.43	2640.47	2416.23	2110.81	1860.77	1761.17	1860.77	2110.81	2416.23	2640.47	2833.43	3191.57	3639.28	4102.83	4546.28	4840.83	4918.25	4911.52
14	5090.57	5111.55	5034.66	4716.68	4216.56	3733.48	3244.16	2864.52	2649.77	2364.45	1997.77	1696.93	1565.89	1696.93	1997.77	2364.45	2649.77	2864.52	3244.16	3733.48	4216.56	4716.68	5034.66	5111.55	5090.57
15	5262.26	5288.92	5224.8	4891.48	4372.07	3832.45	3301.74	2901.19	2659.7	2298.12	1868.23	1519.09	1376.55	1519.09	1868.23	2298.12	2659.7	2901.19	3301.74	3832.45	4372.07	4891.48	5224.8	5288.92	5262.26
16	5421.34	5478.02	5418.67	5080.61	4525.66	3939.92	3362.93	2944.72	2665.81	2215.59	1705.03	1310.05	1165.32	1310.05	1705.03	2215.59	2665.81	2944.72	3362.93	3939.92	4525.66	5080.61	5418.67	5478.02	5421.34
17	5562.29	5629.77	5600.04	5262.53	4689.17	4051.19	3430.12	2992.4	2668.83	2125.72	1546.38	1129.94	1005.99	1129.94	1546.38	2125.72	2668.83	2992.4	3430.12	4051.19	4689.17	5262.53	5600.04	5629.77	5562.29
18	5695.03	5786.82	5779.38	5451.35	4864.19	4172.08	3500.06	3043.77	2663.65	2185.57	1366.52	958.717	846.664	958.717	1366.52	2185.57	2663.65	3043.77	3500.06	4172.08	4864.19	5451.35	5779.38	5786.82	5695.03
19	5832.36	5941.27	5947.27	5640.35	5041.17	4297.48	3572.92	3097.78	2645.93	1897.26	1196.19	812.678	703.052	812.678	1196.19	1897.26	2645.93	3097.78	3572.92	4297.48	5041.17	5640.35	5947.27	5941.27	5832.36
20	5963.45	6087.72	6116.34	5830.64	5227.15	4431.25	3650.57	3153.01	2616.24	1773.3	1042.03	693.891	607.008	693.891	1042.03	1773.3	2616.24	3153.01	3650.57	4431.25	5227.15	5830.64	6116.34	6087.72	5963.45
21	6100.45	6244.68	6301.59	6029.61	5419.53	4570.81	3729.51	3207.45	2573.38	1633.79	906.581	595.017	534.39	595.017	906.581	1633.79	2573.38	3207.45	3729.51	4570.81	5419.53	6029.61	6301.59	6244.68	6100.45
22	6215.23	6386.95	6487.57	6225.1	5615.83	4711.66	3809.49	3257.77	2518.81	1495.41	795.802	535.603	496.513	535.603	795.802	1495.41	2518.81	3257.77	3809.49	4711.66	5615.83	6225.1	6487.57	6386.95	6215.23
23	6308.05	6532.05	6687.78	6432.38	5819.51	4860.6	3893.32	3305.47	2455.41	1356.4	690.007	502.44	486.431	502.44	690.007	1356.4	2455.41	3305.47	3893.32	4860.6	5819.51	6432.38	6687.78	6532.05	6308.05
24	6404.18	6671.61	6893.62	6641.84	6015.33	5001.68	3975.16	3347.91	2382.35	1219.47	616.308	498.827	501.903	498.827	616.308	1219.47	2382.35	3347.91	3975.16	5001.68	6015.33	6641.84	6893.62	6671.61	6404.18
25	6489.41	6799.85	7090.72	6866.94	6211.3	5143.51	4059.52	3386.42	2301.23	1029.54	572.665	516.672	529.359	516.672	572.665	1029.54	2301.23	3386.42	4059.52	5143.51	6211.3	6866.94	7090.72	6799.85	6489.41
26	6538.26	6923.08	7290.62	7104.25	6406.78	5282.81	4142.39	3417.69	2210.86	977.211	555.105	549.729	566.851	549.729	555.105	977.211	2210.86	3417.69	4142.39	5282.81	6406.78	7104.25	7290.62	6923.08	6538.26
27	6576.14	7008.77	7482.07	7338.74	6596	5417.72	4222.23	3440.95	2108.51	876.944	562.039	587.718	607.3	587.718	562.039	876.944	2108.51	3440.95	4222.23	5417.72	6596	7338.74	7482.07	7008.77	6576.14
28	6609.13	7080.32	7653.48	7577.11	6791.95	5554.41	4300.38	3455.36	2001.71	794.072	589.19	629.891	644.388	629.891	589.19	794.072	2001.71	3455.36	4300.38	5554.41	6791.95	7577.11	7653.48	7080.32	6609.13
29	6626.84	7132.78	7804.52	7814.01	6984.72	5684.79	4373.45	3459.49	1881.48	728.016	627.557	671.652	672.507	671.652	627.557	728.016	1881.48	3459.49	4373.45	5684.79	6984.72	7814.01	7804.52	7132.78	6626.84
30	6648.43	7177.16	7926.4	8038.83	7179.41	5814.4	4443.44	3453.05	1758.47	690.047	671.559	699.082	684.73	699.082	671.559	690.047	1758.47	3453.05	4443.44	5814.4	7179.41	8038.83	7926.4	7177.16	6648.43
31	6658.86	7213.2	8033.02	8261.26	7375.81	5941.77	4508.33	3434.7	1633.01	674.118	718.597	715.985	689.967	715.985	718.597	674.118	1633.01	3434.7	4508.33	5941.77	7375.81	8261.26	8033.02	7213.2	6658.86
32	6640.51	7221.17	8116.7	8465.77	7571.92	6064.05	4564.56	3406.11	1504.38	678.453	761.332	723.515	685.526	723.515	761.332	678.453	1504.38	3406.11	4564.56	6064.05	7571.92	8465.77	8116.7	7221.17	6640.51
33	6583.89	7198.21	8186.18	8666.47	7772.96	6187.11	4619.39	3365.73	1382.19	702.535	794.138	721.573	669.862	721.573	794.138	702.535	1382.19	3365.73	4619.39	6187.11	7772.96	8666.47	8186.18	7198.21	6583.89
34	6529.41	7146.57	8227.6	8838.14	7959.96	6301.3	4669.12	3315.51	1263.94	736.468	815.224	709.515	649.518	709.515	815.224	736.468	1263.94	3315.51	4669.12	6301.3	7959.96	8838.14	8227.6	7146.57	6529.41
35	6436.95	7090.53	8249.78	8977.86	8137.92	6412.58	4719.15	3255.5	1157.67	775.577	825.247	694.249	626.583	694.249	825.247	775.577	1157.67	3255.5	4719.15	6412.58	8137.92	8977.86	8249.78	7090.53	6436.95
36	6280.53	6991.11	8238.85	9102.62	8311.58	6521.84	4769.14	3187.16	1062.09	818.764	825.326	673.249	599.074	673.249	825.326	818.764	1062.09	3187.16	4769.14	6521.84	8311.58	9102.62	8238.85	6991.11	6280.53
37	6087.26	6842.06	8213.85	9201.89	8468.63	6623.46	4819.89	3112.33	980.943	858.516	818.313	648.292	572.041	648.292	818.313	858.516	980.943	3112.33	4819.89	6623.46	8468.63	9201.89	8213.85	6842.06	6087.26
38	5836.88	6655.25	8151.87	9272.37	8610.84	6727.28	4876.87	3030.67	917.055	890.977	807.488	626													

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161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	ALEDMATY/480	Sample ID.	AB1
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the ANSI C82.77:2002.

The total harmonic distortion shall be measured to the 40th order.

The ambient temperature condition was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
480.00	60	0.213	92.1	0.901	16.72%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2022/12/26	2023/12/25
DLF108	Auxiliary Lamp	2022/12/26	2023/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2022/12/26	2023/12/25
DLF116	AC Power Source	2022/12/26	2023/12/25
DLF113	Power Meter	2022/12/26	2023/12/25
DLF112	Temperature Recorder	2022/12/26	2023/12/25
DLF114	Temperature & Humidity Datalogger	2022/12/26	2023/12/25
DLF101	Goniophotometer	2022/12/26	2023/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2022/12/26	2023/12/25
DLF104	AC Power Source	2022/12/26	2023/12/25
DLF507	DC Power Source	2022/12/26	2023/12/25
DLF102	Power Meter	2022/12/26	2023/12/25
DLF111	Temperature & Humidity Datalogger	2022/12/26	2023/12/25
DLF119	Power Meter	2022/12/26	2023/12/25
DLF031	Temperature data logger	2022/12/26	2023/12/25
DLF022	Digital power meter	2022/12/26	2023/12/25
DLF003	Temperature & Humidity Datalogger	2022/12/26	2023/12/25

***** End of Test Report*****