

# Photometric Test Report

## Relevant Standards

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

## Prepared For

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## Project Number

**DLF2102103**

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## Test Date

**2021/2/6**

## Issue Date

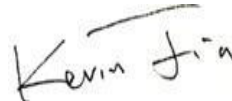
**2021/3/16**

## Prepared By



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Kevin Jia

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## 1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Pole/Arm-Mounted Decorative Luminaires				
Requirement Category	Test Method	Requirements	Test value	
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1000	3377	
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	132.4
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case	25.5	
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	8.89%	
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	0.886	
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4793
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70	70	
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40	-28	
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70	71	
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89	96	
IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18% ≤ IES Rcs,h1 ≤ +23%	-17%	
Zonal Lumen Requirement (0°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≥65%	100.00%	
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	0.060	

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/2/6	ALED5T26/480/D10	F1
2	Goniophotometer Test	2021/2/6	ALED5T26/480/D10	F1
3	THD and PF Test	2021/2/6	ALED5T26/480/D10	F1

### Remark(If any)

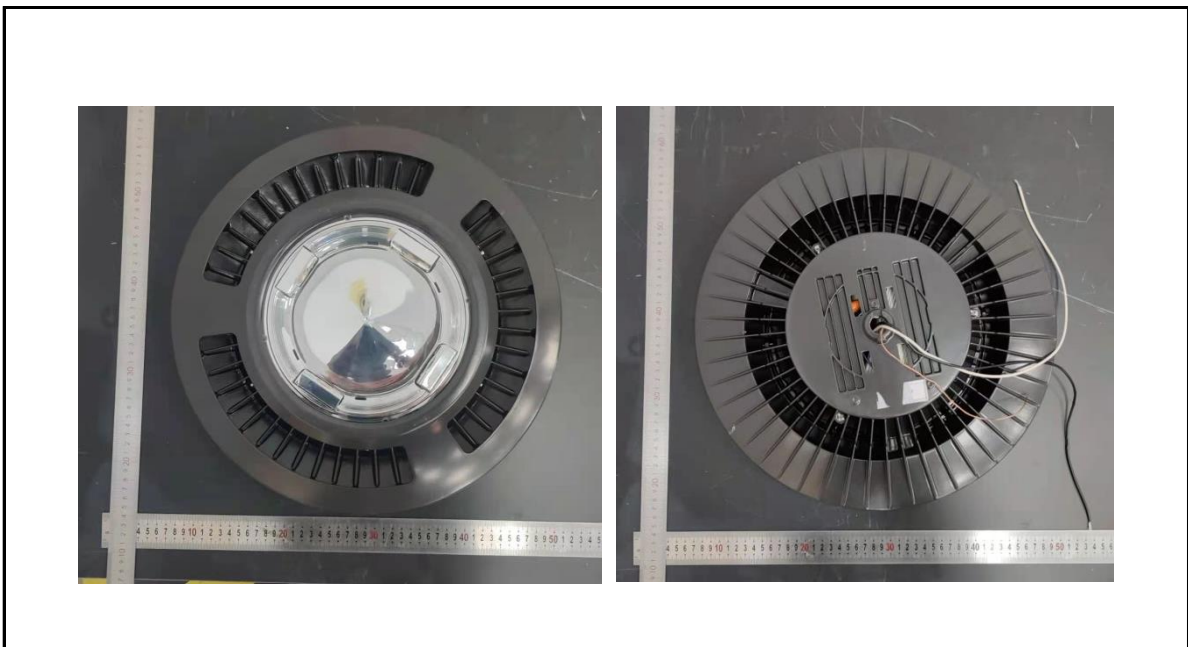
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## 3.0 Production Description

**Luminaire Description:** ALED5T26/480/D10

**Electrical Specification:** 480V,50/60HZ

### Photos of Luminaire Characteristics



## 4.0 LM-79 Measurement and Test Results

### 4.1 Integrating Sphere Test

Model No.	ALED5T26/480/D10	Sample ID.	F1
Operate 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 parameters 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  $\pm 0.2$  percent under load.

The sample was measured using  $4\pi$  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	0.060	25.5	0.886

#### Test Result

CCT (K)	CRI	R9	Duv
4793	70	-28	0.0056

Rf	Rg	IES Rcs,h1
71	96	-17%

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	ALED5T26/480/D10	Sample ID.	F1
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° C ± 1° 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	0.060	25.5	0.886

#### Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
3377	174.1	174.2	170.0	170.1	132.4

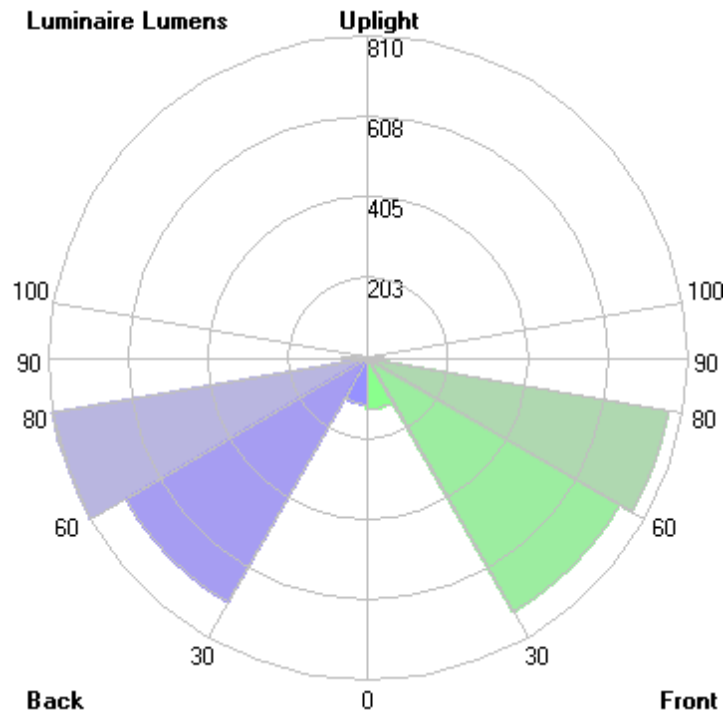
Zonal Lumen Requirement (0°-90°)	BUG rating
100.00%	B2-U0-G1

#### 4.2 Goniophotometer Test

	Zonal (lm)		Total (lm)	Percent
0-10	8.92	0 - 10	8.92	0.26%
10-20	69.17	0 - 20	78.09	2.31%
20-30	167.17	0 - 30	245.26	7.26%
30-40	280.61	0 - 40	525.87	15.57%
40-50	458.46	0 - 50	984.33	29.14%
50-60	706.92	0 - 60	1691.25	50.08%
60-70	907.20	0 - 70	2598.45	76.94%
70-80	675.93	0 - 80	3274.38	96.95%
80-90	103.05	0 - 90	3377.43	100.00%
90-100	0.00	0 - 100	3377.43	100.00%
100-110	0.00	0 - 110	3377.43	100.00%
110-120	0.00	0 - 120	3377.43	100.00%
120-130	0.00	0 - 130	3377.43	100.00%
130-140	0.00	0 - 140	3377.43	100.00%
140-150	0.00	0 - 150	3377.43	100.00%
150-160	0.00	0 - 160	3377.43	100.00%
160-170	0.00	0 - 170	3377.43	100.00%
170-180	0.00	0 - 180	3377.43	100.00%

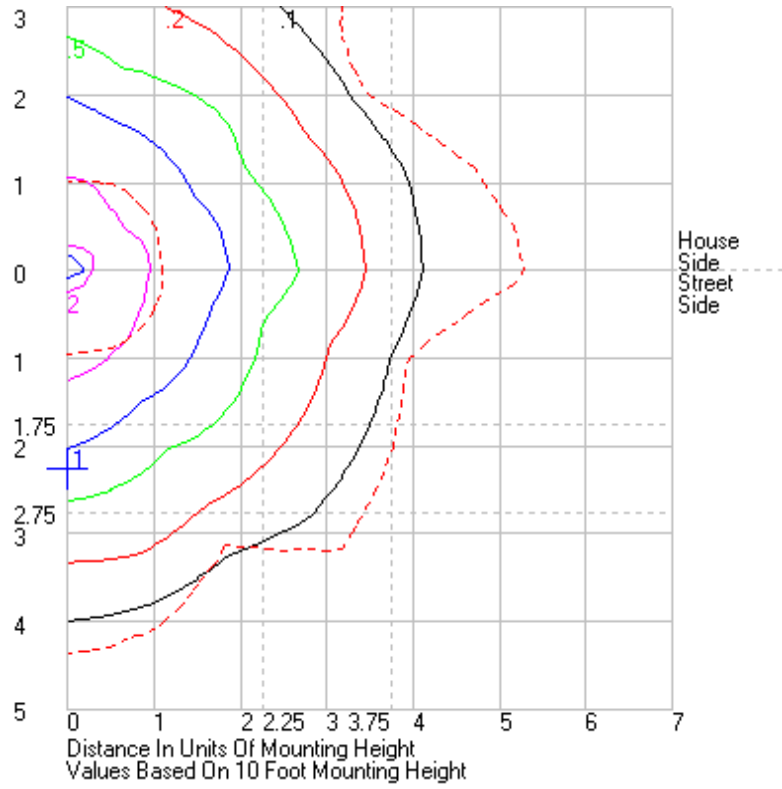
## 4.2 Goniophotometer Test

LCS/BUG



	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	128.7	N.A.	3.8
FM - Front-Medium (30-60)	736.1	N.A.	21.8
FH - Front-High (60-80)	772.7	N.A.	22.9
FVH - Front-Very High (80-90)	39.9	N.A.	1.2
BL - Back-Low (0-30)	116.5	N.A.	3.5
BM - Back-Medium (30-60)	709.9	N.A.	21.0
BH - Back-High (60-80)	810.4	N.A.	24.0
BVH - Back-Very High (80-90)	63.1	N.A.	1.9
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
<b>Total</b>	<b>3377.3</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B2-U0-G1</b>		

Isolines





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Vert. Angles	Horizontal Angles									
	0	15	30	45	60	75	90	105	120	135
0	58.054	58.054	58.054	58.054	58.054	58.054	58.054	58.054	58.054	58.054
1	61.651	61.158	60.287	60.912	59.775	57.632	55.992	53.972	52.301	51.932
2	67.535	67.578	68.448	64.511	61.558	58.001	53.972	50.426	47.598	46.788
3	74.588	74.321	72.845	69.759	64.777	59.365	55.080	52.671	50.733	50.005
4	80.103	78.124	75.695	72.630	67.832	62.050	58.862	59.477	57.120	56.135
5	83.281	82.020	79.026	75.367	71.379	67.412	65.997	66.663	64.224	61.148
6	87.832	84.675	82.809	79.969	77.068	71.861	73.798	73.122	68.949	67.094
7	95.971	90.774	89.124	86.653	85.074	78.965	77.981	77.489	73.685	73.255
8	114.475	105.423	101.610	98.073	93.470	88.264	81.927	81.333	77.642	78.842
9	145.485	132.353	123.926	116.761	108.540	98.023	88.929	84.367	81.927	84.716
10	176.679	162.912	151.892	139.662	124.572	114.700	100.226	89.175	90.620	92.558
11	206.018	192.763	179.857	162.594	146.725	139.457	122.666	108.920	105.946	106.735
12	231.266	220.851	200.277	187.197	168.929	164.308	151.174	132.076	126.161	127.309
13	248.355	243.004	224.726	212.425	198.227	187.668	179.724	162.891	146.981	151.246
14	264.962	258.986	245.403	224.480	219.785	211.984	203.352	189.483	167.801	175.182
15	287.873	278.719	258.802	243.004	239.180	233.573	217.868	207.771	192.353	200.462
16	304.193	292.527	272.681	259.580	251.748	240.964	235.336	222.461	214.290	220.995
17	305.013	294.608	281.313	275.008	265.300	252.292	255.213	233.891	227.053	241.712
18	305.423	293.788	287.945	289.637	273.163	264.665	274.731	251.564	237.745	255.961
19	316.669	299.877	296.167	301.661	288.417	273.768	285.188	257.304	245.187	273.983
20	331.923	309.606	306.141	309.442	304.183	278.709	278.258	261.825	256.484	277.069
21	343.722	324.275	313.204	314.198	313.932	293.460	280.554	268.551	271.266	269.267
22	355.213	342.943	327.812	326.633	323.660	299.570	286.049	276.976	284.624	275.890
23	365.003	363.660	342.071	340.882	336.648	315.941	297.233	287.074	299.027	293.091
24	370.836	387.556	354.229	351.267	346.736	331.923	315.347	298.237	311.964	312.989
25	379.806	405.864	367.679	359.714	357.089	347.474	327.248	310.231	320.534	327.402
26	387.628	416.054	377.274	365.875	366.418	361.313	338.750	330.867	326.305	340.944
27	398.319	423.373	382.912	370.416	377.766	372.312	342.481	345.505	333.061	341.507
28	413.604	435.798	389.729	381.354	387.607	383.076	350.887	360.206	341.948	344.757
29	431.677	444.593	395.562	394.445	395.265	393.378	366.162	380.144	352.692	355.541
30	445.895	456.105	403.978	429.821	411.472	409.678	379.939	398.679	362.932	367.648
31	455.941	465.977	424.265	440.093	429.340	416.710	400.687	414.137	367.638	395.839
32	457.182	469.801	422.410	439.488	418.022	422.123	414.035	425.916	374.732	429.063
33	458.812	471.585	414.383	441.692	408.099	436.987	426.961	433.132	393.706	436.474
34	460.257	482.861	407.330	442.041	406.592	442.123	433.173	436.895	397.571	425.926
35	464.388	482.994	407.258	438.022	407.197	426.162	435.952	437.807	389.914	414.885
36	481.374	480.247	412.343	435.377	412.979	410.467	439.099	450.313	387.310	405.793
37	497.971	486.510	431.318	441.036	425.003	408.366	438.730	462.533	391.164	402.358
38	501.026	496.249	454.701	455.029	438.627	416.269	447.838	460.688	401.323	404.255
39	509.596	503.302	480.042	472.353	460.903	433.891	467.187	461.436	417.120	420.534
40	535.183	520.021	503.917	498.910	480.554	455.511	474.988	466.654	439.949	440.206
41	556.208	540.770	522.707	497.510	494.188	481.415	474.711	477.048	474.752	452.046
42	567.259	564.030	536.967	510.334	503.148	501.713	485.905	485.485	496.075	464.911
43	587.013	587.515	549.709	526.541	513.286	520.401	507.392	497.787	503.312	475.788
44	610.826	617.889	564.747	549.483	527.925	540.821	529.545	524.142	513.163	495.911
45	636.874	639.765	581.067	571.626	547.536	551.431	543.773	551.175	522.379	513.184
46	664.911	661.282	603.148	597.551	568.079	567.392	566.931	578.699	536.659	540.472
47	697.356	681.375	624.706	620.339	593.030	582.687	595.039	603.333	551.544	569.165
48	729.453	698.002	648.838	642.246	615.952	599.950	614.998	618.617	578.228	598.535
49	758.689	716.075	669.699	658.955	637.654	624.019	638.709	644.573	605.178	624.378
50	787.505	731.995	684.963	674.096	654.394	643.825	665.732	662.010	630.221	651.226
51	809.494	752.938	705.619	685.250	670.693	664.030	692.528	678.822	650.580	672.169
52	834.220	771.852	715.706	698.833	683.651	685.086	729.555	691.975	680.452	694.250
53	870.642	790.785	729.576	717.049	697.592	699.581	753.123	710.693	700.134	711.144
54	892.836	819.673	743.743	726.090	714.015	721.939	786.439	735.685	718.094	731.011
55	902.646	843.425	753.082	728.253	727.341	740.545	817.890	753.430	732.497	735.450
56	922.841	861.406	757.008	741.867	729.822	757.777	845.896	781.252	750.908	738.105



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57	943.630	887.218	759.632	759.150	737.633	762.298	872.190	815.265	749.412	748.940
58	964.799	909.761	760.258	769.484	748.038	763.230	885.096	833.922	754.199	768.787
59	1005.753	926.819	766.665	791.647	767.075	771.083	900.473	859.684	758.289	795.378
60	1047.003	930.386	776.024	810.273	780.278	777.931	917.018	890.929	766.449	801.754
61	1089.525	933.718	784.840	831.421	793.020	774.660	930.140	904.512	777.767	824.840
62	1120.914	943.149	799.735	865.322	811.667	775.347	953.472	912.047	773.943	854.066
63	1134.118	962.472	805.250	897.664	815.880	781.744	972.221	910.581	786.839	876.188
64	1153.257	986.542	819.991	917.572	826.777	784.963	987.618	916.086	790.375	914.025
65	1190.602	1017.828	840.729	950.694	854.568	792.405	1010.509	931.452	793.840	934.076
66	1198.546	1028.838	845.271	987.926	904.163	799.017	1021.160	948.572	807.136	950.622
67	1195.194	1008.418	814.999	946.255	899.448	819.520	1059.366	984.276	830.919	993.359
68	1174.466	994.056	808.746	904.307	871.934	803.200	1116.516	994.692	848.172	1013.010
69	1127.793	971.052	791.196	856.680	841.385	798.813	1156.793	1001.047	826.408	942.974
70	1045.671	938.464	761.805	816.865	827.710	779.550	1163.211	973.000	786.501	880.822
71	956.352	912.405	733.194	765.475	797.367	764.450	1152.396	943.466	780.483	805.660
72	892.077	885.814	701.539	747.895	766.613	733.379	1081.263	924.707	744.050	748.407
73	844.666	852.528	675.183	729.258	732.764	708.879	989.412	888.223	710.652	702.133
74	801.160	789.166	630.334	721.272	712.969	682.564	902.790	849.166	676.526	666.900
75	751.237	701.119	576.844	710.744	691.452	654.824	807.362	803.241	635.747	639.181
76	695.132	635.972	513.830	683.138	658.843	611.103	766.152	751.021	595.778	621.477
77	607.402	569.360	440.278	627.249	593.379	529.975	728.715	676.218	533.430	608.561
78	522.246	497.551	381.282	564.973	520.339	473.666	673.205	608.889	473.522	602.984
79	415.470	416.751	333.450	488.848	471.738	425.290	620.831	567.228	433.378	576.751
80	308.550	329.637	287.463	411.441	397.171	360.052	534.240	495.275	381.231	507.556
81	197.181	230.682	245.331	361.395	333.071	312.640	450.693	431.943	334.434	442.451
82	101.066	135.162	179.488	284.070	269.124	249.565	349.555	356.597	281.415	374.352
83	55.715	61.722	107.125	179.242	187.832	172.999	226.233	252.538	234.014	309.421
84	35.090	40.564	46.653	98.462	109.636	109.052	140.738	170.344	170.846	220.328
85	14.464	19.487	27.135	54.464	45.515	44.757	57.929	78.473	85.249	112.404
86	6.612	6.233	8.375	31.399	26.284	26.592	39.047	36.853	45.197	48.057
87	3.772	3.690	4.018	8.334	7.299	9.154	20.554	18.380	19.252	27.494
88	1.035	1.230	2.060	4.695	4.357	4.757	7.504	5.710	4.931	7.883
89	0.451	0.584	0.738	2.142	1.732	2.430	4.336	3.557	2.932	4.234
90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
91	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
93	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
94	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
97	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
98	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
103	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
107	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
112	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
113	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000





NVLAP LAB CODE 201074-0

177	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
178	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vert. Angles	Horizontal Angles									
	150	165	180	195	210	225	240	255	270	285
0	58.054	58.054	58.054	58.054	58.054	58.054	58.054	58.054	58.054	58.054
1	52.496	53.962	55.418	56.956	58.098	59.190	60.154	61.220	61.702	61.620
2	47.998	50.487	55.008	58.042	60.523	64.111	65.997	67.237	67.217	67.268
3	51.225	53.173	56.976	59.139	63.701	68.386	72.865	74.300	74.485	72.558
4	58.503	62.071	61.876	62.963	66.868	72.742	77.130	80.082	79.949	78.647
5	63.373	69.062	70.436	68.273	72.517	76.986	81.189	83.445	84.736	84.613
6	69.636	74.557	76.340	74.034	78.985	82.624	85.279	86.899	89.862	91.768
7	73.819	79.354	80.164	81.179	85.864	89.893	92.261	92.671	96.751	103.701
8	78.452	81.271	83.404	86.284	94.219	100.297	104.603	107.022	115.315	126.776
9	83.896	84.439	89.021	97.560	108.232	116.874	123.106	134.741	138.862	153.645
10	92.794	94.516	99.221	116.300	128.365	138.832	148.909	162.133	167.494	183.127
11	110.538	111.594	119.969	143.793	152.435	160.708	172.650	196.515	194.331	209.083
12	131.922	141.271	149.011	173.286	176.638	186.643	194.167	225.187	215.510	225.803
13	156.013	171.051	175.726	196.978	204.429	212.845	221.251	244.511	237.735	245.557
14	179.242	200.626	200.738	220.154	224.019	230.293	241.825	258.934	260.154	259.437
15	204.398	222.379	222.942	242.809	240.513	245.434	256.812	268.140	278.237	262.450
16	227.617	240.410	239.457	253.511	254.721	263.486	263.096	274.024	294.865	269.842
17	245.126	255.418	260.564	265.587	267.740	283.865	278.770	277.684	303.640	272.917
18	255.029	266.233	287.986	275.500	275.541	294.762	288.827	283.486	314.444	282.922
19	259.426	269.421	301.118	280.616	290.805	297.489	295.582	290.477	320.585	295.818
20	275.726	275.326	306.684	285.188	310.651	299.765	308.601	299.549	325.751	310.549
21	290.959	280.646	316.259	291.502	324.921	309.165	319.324	308.899	329.401	329.411
22	308.427	293.071	323.927	302.553	330.775	320.247	325.649	322.676	334.608	344.880
23	324.911	310.610	337.315	318.545	337.315	330.539	334.229	340.482	340.841	358.299
24	332.363	321.292	342.932	333.204	344.029	335.992	344.685	365.987	354.906	377.315
25	335.326	329.626	343.640	348.612	357.510	338.022	358.371	391.513	368.345	392.025
26	342.830	343.332	347.515	364.275	369.944	341.425	371.410	414.629	385.249	410.980
27	351.072	361.169	360.380	384.306	374.967	352.497	381.292	432.886	397.469	428.469
28	362.379	384.357	373.020	399.181	375.531	368.519	390.129	443.015	407.002	441.518
29	374.588	404.409	389.124	413.553	380.718	388.796	393.050	455.859	424.870	454.055
30	387.146	426.080	402.010	426.982	382.307	414.680	397.007	465.618	441.313	457.520
31	394.199	442.871	413.450	437.161	393.245	440.749	413.368	464.450	451.226	460.790
32	411.390	451.082	433.542	447.740	410.252	438.289	413.932	456.690	457.869	469.432
33	423.312	452.743	449.832	448.776	406.623	433.604	404.860	458.350	462.471	477.243
34	417.725	453.297	453.122	450.180	404.152	420.575	402.235	467.781	463.189	470.180
35	411.625	466.818	459.775	460.390	403.958	409.616	402.635	462.810	468.509	472.538
36	413.409	478.022	460.421	464.686	407.423	408.068	409.555	465.321	477.325	479.724
37	419.375	470.980	464.060	459.714	410.067	410.242	426.664	476.515	485.772	489.657
38	424.552	470.508	474.701	462.195	424.122	429.596	448.068	488.161	502.359	501.959
39	440.083	478.176	481.323	470.119	445.618	457.243	478.053	496.710	534.578	521.200
40	464.932	488.827	491.380	481.344	473.020	477.294	506.941	515.408	548.448	541.846
41	486.500	496.556	517.479	492.374	493.194	488.335	520.636	534.783	555.460	569.842
42	494.414	510.990	553.584	511.216	503.527	509.329	530.888	558.422	573.491	595.860
43	501.036	534.506	561.416	534.609	517.940	523.722	544.973	584.050	589.432	611.994
44	510.098	560.688	570.211	560.308	530.816	547.894	559.991	607.597	607.566	627.238
45	522.840	580.534	588.376	587.474	546.582	571.667	583.292	625.783	631.687	642.308
46	540.698	597.448	603.753	603.888	573.081	598.115	605.516	635.624	658.002	657.859
47	564.952	610.816	620.001	625.209	593.051	624.409	632.877	654.045	691.185	674.906
48	595.234	628.776	641.354	637.397	625.055	644.214	656.259	671.370	717.961	691.933
49	624.665	642.318	669.217	657.920	648.612	669.770	677.725	698.556	750.017	723.435
50	648.950	662.277	704.071	681.129	673.840	684.809	697.879	729.883	785.024	755.132
51	675.163	685.106	739.181	711.472	697.879	699.704	717.736	748.417	816.331	768.069



52	698.793	710.632	773.246	747.023	721.119	710.867	729.422	767.362	854.488	789.566
53	716.618	735.655	804.081	763.825	734.701	731.401	745.691	787.198	880.340	805.024
54	737.674	768.479	838.085	789.504	751.298	732.610	762.574	804.799	900.073	819.356
55	757.859	792.436	860.863	814.056	770.181	744.184	769.453	819.048	915.040	831.790
56	769.525	812.385	888.254	833.031	770.232	767.023	775.440	830.919	933.349	845.045
57	777.838	830.611	904.676	847.034	781.539	787.538	784.348	845.908	975.604	874.240
58	788.183	839.294	913.800	862.697	784.830	804.901	806.665	862.585	1014.999	896.824
59	804.061	847.392	938.167	883.876	801.354	819.263	819.714	880.340	1056.824	892.426
60	826.859	859.079	973.431	911.165	807.864	840.945	828.561	881.016	1100.894	892.334
61	843.302	870.642	1004.645	925.763	810.376	886.849	837.551	879.971	1135.379	897.613
62	861.016	875.901	1037.941	923.354	820.873	905.424	840.811	879.919	1152.529	904.010
63	867.977	871.021	1081.498	929.258	829.607	944.522	849.115	883.917	1152.488	925.025
64	878.947	872.293	1114.897	943.364	834.661	959.325	876.270	889.720	1151.966	947.393
65	881.939	872.877	1127.547	964.922	868.090	985.486	934.107	903.743	1177.039	964.789
66	889.074	870.581	1125.732	982.605	898.341	1048.090	935.368	895.614	1183.969	956.014
67	914.579	877.828	1131.504	985.219	892.149	963.579	886.767	879.192	1177.193	933.779
68	924.543	873.769	1154.969	993.882	863.292	891.175	845.845	864.409	1123.856	917.500
69	892.662	861.693	1153.646	973.666	814.394	832.477	809.719	842.533	1081.334	896.772
70	858.209	848.325	1143.098	933.892	776.065	773.133	789.217	801.221	996.619	855.573
71	833.769	822.841	1107.844	901.098	749.771	728.971	760.411	757.295	926.388	819.181
72	782.779	790.416	1043.128	856.865	710.437	725.301	743.466	735.829	859.089	792.959
73	728.294	756.116	969.963	821.037	683.394	726.459	709.114	697.233	808.653	726.613
74	684.132	717.838	884.922	789.617	647.638	720.729	662.697	627.126	762.246	642.851
75	668.653	686.368	818.720	736.834	598.023	697.141	604.091	547.105	693.041	560.739
76	667.966	623.855	780.545	666.808	514.311	658.361	523.579	488.018	631.452	510.929
77	661.334	535.777	725.691	617.438	442.502	597.428	456.823	426.080	546.736	449.504
78	627.279	478.022	671.564	573.010	384.163	534.270	394.352	358.432	422.963	380.165
79	601.211	420.072	600.237	511.656	338.627	463.537	333.276	306.705	336.136	309.647
80	550.324	360.288	492.538	443.435	302.820	389.391	286.090	239.816	247.063	222.297
81	474.229	301.651	382.440	355.480	260.164	310.785	220.236	163.424	159.559	142.266
82	390.180	245.270	288.119	254.906	192.404	216.002	142.584	87.227	72.558	62.378
83	289.965	176.228	198.022	160.677	119.293	123.957	66.448	47.391	35.818	30.651
84	174.782	104.213	107.914	66.633	53.306	50.097	41.948	27.073	24.018	15.049
85	83.619	49.780	43.957	36.463	34.095	32.455	17.458	7.002	12.230	5.126
86	43.444	24.070	26.376	21.394	14.885	14.823	4.100	3.598	4.900	2.676
87	20.051	7.340	15.613	6.397	3.895	5.197	2.101	1.456	2.060	0.984
88	6.140	4.634	4.890	2.942	1.579	2.327	0.615	0.410	0.297	0.246
89	3.762	2.009	1.855	0.861	0.502	0.328	0.185	0.144	0.144	0.144
90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
91	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
93	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
94	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
97	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
98	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
99	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
103	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
107	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



172	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
174	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
178	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
179	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vert. Angles	Horizontal Angles				
	300	315	330	345	360
0	58.054	58.054	58.054	58.054	58.054
1	61.897	61.866	61.589	61.230	61.651
2	67.330	66.991	66.909	66.694	67.535
3	72.250	73.429	73.019	72.824	74.588
4	79.385	81.046	79.908	79.170	80.103
5	85.741	89.411	87.976	85.074	83.281
6	94.290	97.304	96.628	92.035	87.832
7	111.092	111.810	110.026	102.440	95.971
8	130.918	134.229	129.308	121.446	114.475
9	161.712	154.618	157.202	149.431	145.485
10	180.267	181.958	180.431	177.971	176.679
11	204.716	210.826	207.238	201.487	206.018
12	230.744	231.584	231.061	226.223	231.266
13	241.835	250.897	244.542	248.550	248.355
14	257.304	267.433	267.279	263.199	264.962
15	262.553	283.086	279.160	273.306	287.873
16	272.097	294.690	281.938	274.157	304.193
17	287.217	294.547	302.358	276.105	305.013
18	302.317	297.304	322.625	285.577	305.423
19	321.323	308.089	334.649	301.354	316.669
20	331.390	321.538	344.060	320.134	331.923
21	338.842	337.817	346.715	334.147	343.722
22	350.898	350.631	351.759	345.321	355.213
23	358.883	356.320	360.021	354.178	365.003
24	370.969	359.406	373.143	369.093	370.836
25	382.973	369.257	385.721	384.942	379.806
26	393.799	386.326	391.912	405.495	387.628
27	399.058	402.809	395.859	422.994	398.319
28	401.825	435.224	402.092	436.362	413.604
29	413.614	456.013	420.667	442.318	431.677
30	418.279	455.460	416.782	439.990	445.895
31	411.851	446.408	409.011	445.055	455.941
32	415.726	434.322	409.124	449.555	457.182
33	419.283	423.640	413.266	439.375	458.812
34	426.725	424.993	421.569	436.013	460.257
35	437.807	432.456	437.879	442.400	464.388
36	455.193	454.322	460.052	452.476	481.374
37	488.480	472.825	487.658	469.770	497.971
38	506.756	490.293	505.690	491.892	501.026
39	520.657	499.458	518.043	511.697	509.596
40	532.005	511.410	525.690	534.670	535.183
41	538.432	531.923	536.659	561.149	556.208
42	552.374	552.856	552.261	582.769	567.259
43	571.339	579.765	574.209	596.700	587.013
44	590.888	607.105	598.330	613.430	610.826
45	617.828	631.011	625.528	628.551	636.874
46	638.586	653.717	650.785	647.382	664.911



47	660.626	672.272	672.590	670.160	697.356
48	680.329	683.856	692.733	692.169	729.453
49	694.722	696.372	705.711	715.491	758.689
50	712.959	712.415	720.985	735.819	787.505
51	722.656	727.218	737.438	758.289	809.494
52	743.927	728.315	756.106	785.188	834.220
53	754.640	737.972	768.264	802.431	870.642
54	754.732	750.755	772.743	817.674	892.836
55	756.362	764.379	774.496	821.683	902.646
56	763.702	786.521	789.781	823.794	922.841
57	776.741	811.513	806.419	833.953	943.630
58	792.487	835.552	818.156	840.534	964.799
59	801.754	865.414	834.804	846.747	1005.753
60	806.562	893.636	842.082	854.199	1047.003
61	811.062	926.050	845.496	855.870	1089.525
62	824.532	931.637	856.465	859.386	1120.914
63	840.135	961.990	882.390	872.662	1134.118
64	877.367	988.787	921.631	877.152	1153.257
65	870.632	964.748	913.431	882.728	1190.602
66	840.094	901.232	888.028	863.477	1198.546
67	806.326	855.665	865.670	852.088	1195.194
68	777.285	791.329	835.593	834.599	1174.466
69	749.976	758.023	799.909	815.429	1127.793
70	719.478	732.323	772.969	780.473	1045.671
71	690.068	709.494	737.684	738.515	956.352
72	658.607	687.525	705.496	710.765	892.077
73	596.044	675.542	669.801	675.019	844.666
74	543.630	645.219	624.778	601.754	801.160
75	463.712	616.423	546.510	521.867	751.237
76	410.867	565.311	494.824	466.551	695.132
77	367.474	503.035	434.803	408.171	607.402
78	316.853	430.067	369.770	348.714	522.246
79	277.520	367.135	307.986	294.055	415.470
80	219.211	297.417	245.598	230.897	308.550
81	152.384	209.226	171.113	156.607	197.181
82	86.356	121.046	96.628	82.337	101.066
83	54.300	51.194	49.134	45.966	55.715
84	22.245	33.819	27.094	26.417	35.090
85	4.798	16.443	5.423	7.207	14.464
86	2.245	7.104	3.690	3.444	6.612
87	0.984	2.307	1.404	1.517	3.772
88	0.256	0.338	0.369	0.533	1.035
89	0.133	0.133	0.133	0.174	0.451
90	0.000	0.000	0.000	0.000	0.000
91	0.000	0.000	0.000	0.000	0.000
92	0.000	0.000	0.000	0.000	0.000
93	0.000	0.000	0.000	0.000	0.000
94	0.000	0.000	0.000	0.000	0.000
95	0.000	0.000	0.000	0.000	0.000
96	0.000	0.000	0.000	0.000	0.000
97	0.000	0.000	0.000	0.000	0.000
98	0.000	0.000	0.000	0.000	0.000
99	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000
101	0.000	0.000	0.000	0.000	0.000
102	0.000	0.000	0.000	0.000	0.000
103	0.000	0.000	0.000	0.000	0.000
104	0.000	0.000	0.000	0.000	0.000
105	0.000	0.000	0.000	0.000	0.000
106	0.000	0.000	0.000	0.000	0.000



107	0.000	0.000	0.000	0.000	0.000
108	0.000	0.000	0.000	0.000	0.000
109	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.000	0.000	0.000
111	0.000	0.000	0.000	0.000	0.000
112	0.000	0.000	0.000	0.000	0.000
113	0.000	0.000	0.000	0.000	0.000
114	0.000	0.000	0.000	0.000	0.000
115	0.000	0.000	0.000	0.000	0.000
116	0.000	0.000	0.000	0.000	0.000
117	0.000	0.000	0.000	0.000	0.000
118	0.000	0.000	0.000	0.000	0.000
119	0.000	0.000	0.000	0.000	0.000
120	0.000	0.000	0.000	0.000	0.000
121	0.000	0.000	0.000	0.000	0.000
122	0.000	0.000	0.000	0.000	0.000
123	0.000	0.000	0.000	0.000	0.000
124	0.000	0.000	0.000	0.000	0.000
125	0.000	0.000	0.000	0.000	0.000
126	0.000	0.000	0.000	0.000	0.000
127	0.000	0.000	0.000	0.000	0.000
128	0.000	0.000	0.000	0.000	0.000
129	0.000	0.000	0.000	0.000	0.000
130	0.000	0.000	0.000	0.000	0.000
131	0.000	0.000	0.000	0.000	0.000
132	0.000	0.000	0.000	0.000	0.000
133	0.000	0.000	0.000	0.000	0.000
134	0.000	0.000	0.000	0.000	0.000
135	0.000	0.000	0.000	0.000	0.000
136	0.000	0.000	0.000	0.000	0.000
137	0.000	0.000	0.000	0.000	0.000
138	0.000	0.000	0.000	0.000	0.000
139	0.000	0.000	0.000	0.000	0.000
140	0.000	0.000	0.000	0.000	0.000
141	0.000	0.000	0.000	0.000	0.000
142	0.000	0.000	0.000	0.000	0.000
143	0.000	0.000	0.000	0.000	0.000
144	0.000	0.000	0.000	0.000	0.000
145	0.000	0.000	0.000	0.000	0.000
146	0.000	0.000	0.000	0.000	0.000
147	0.000	0.000	0.000	0.000	0.000
148	0.000	0.000	0.000	0.000	0.000
149	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000
151	0.000	0.000	0.000	0.000	0.000
152	0.000	0.000	0.000	0.000	0.000
153	0.000	0.000	0.000	0.000	0.000
154	0.000	0.000	0.000	0.000	0.000
155	0.000	0.000	0.000	0.000	0.000
156	0.000	0.000	0.000	0.000	0.000
157	0.000	0.000	0.000	0.000	0.000
158	0.000	0.000	0.000	0.000	0.000
159	0.000	0.000	0.000	0.000	0.000
160	0.000	0.000	0.000	0.000	0.000
161	0.000	0.000	0.000	0.000	0.000
162	0.000	0.000	0.000	0.000	0.000
163	0.000	0.000	0.000	0.000	0.000
164	0.000	0.000	0.000	0.000	0.000
165	0.000	0.000	0.000	0.000	0.000
166	0.000	0.000	0.000	0.000	0.000



167	0.000	0.000	0.000	0.000	0.000
168	0.000	0.000	0.000	0.000	0.000
169	0.000	0.000	0.000	0.000	0.000
170	0.000	0.000	0.000	0.000	0.000
171	0.000	0.000	0.000	0.000	0.000
172	0.000	0.000	0.000	0.000	0.000
173	0.000	0.000	0.000	0.000	0.000
174	0.000	0.000	0.000	0.000	0.000
175	0.000	0.000	0.000	0.000	0.000
176	0.000	0.000	0.000	0.000	0.000
177	0.000	0.000	0.000	0.000	0.000
178	0.000	0.000	0.000	0.000	0.000
179	0.000	0.000	0.000	0.000	0.000
180	0.000	0.000	0.000	0.000	0.000

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

Model No.	ALED5T26/480/D10	Sample ID.	F1
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° C ± 1° 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	0.060	25.5	0.886	8.89%

## 5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2020/12/26	2021/12/25
DLF108	Auxiliary Lamp	2020/12/26	2021/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2020/12/26	2021/12/25
DLF116	AC Power Source	2020/12/26	2021/12/25
DLF113	Power Meter	2020/12/26	2021/12/25
DLF112	Temperature Recorder	2020/12/26	2021/12/25
DLF114	Temperature & Humidity Datalogger	2020/12/26	2021/12/25
DLF101	Goniophotometer	2020/12/26	2021/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2020/12/26	2021/12/25
DLF104	AC Power Source	2020/12/26	2021/12/25
DLF507	DC Power Source	2020/12/26	2021/12/25
DLF102	Power Meter	2020/12/26	2021/12/25
DLF111	Temperature & Humidity Datalogger	2020/12/26	2021/12/25
DLF119	Power Meter	2020/12/26	2021/12/25
DLF031	Temperature data logger	2020/12/26	2021/12/25
DLF022	Digital power meter	2020/12/26	2021/12/25
DLF003	Temperature & Humidity Datalogger	2020/12/26	2021/12/25

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