

Photometric Test Report

Relevant Standards

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

Prepared For

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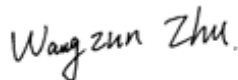
Test Date

2021/2/6

Issue Date

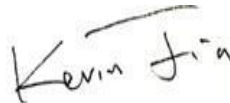
2021/3/16

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 Decorative Luminaires				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1000		6566
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	123.9
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Wrost Case		53.0
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	3.27%
		20.00%	277V	6.42%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.999
		0.9	277V	0.964
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	4805
		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		-29
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		95
Minimum 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	Wrost Case		120
(Goniophotometer - Section 4.2)		Non-Wrost Case		277
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Wrost Case		0.442
(Goniophotometer - Section 4.2)		Non-Wrost Case		0.192
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Wrost Case		53.0
(Goniophotometer - Section 4.2)		Non-Wrost Case		51.3

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/2/6	ALED5T52/D10	B1
2	Goniophotometer Test	2021/2/6	ALED5T52/D10	B1
3	THD and PF Test	2021/2/6	ALED5T52/D10	B1

Remark(If any)

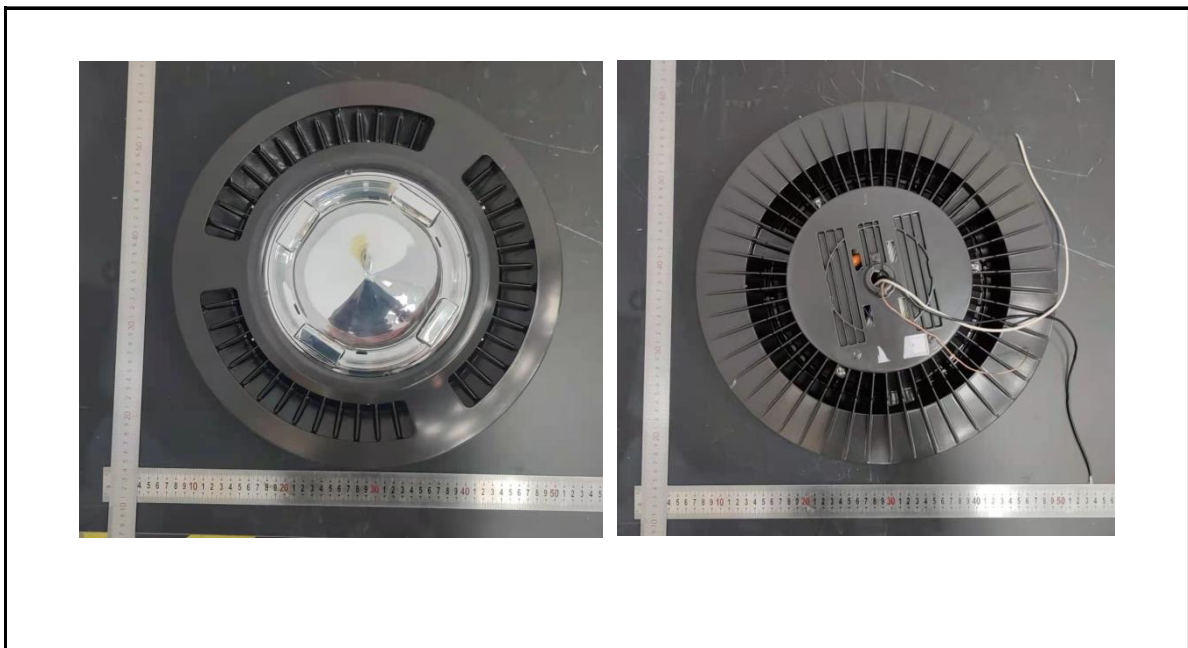
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3.0 Production Description

Luminaire Description: ALED5T52/D10

Electrical Specification: 120V-277V,50/60HZ

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	ALED5T52/D10	Sample ID.	B1
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 ± 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
120.00	60	0.442	53.0	0.999
277.00	60	0.192	51.3	0.964

Test Result

CCT (K)	CRI	R9	Duv
4805	70	-29	0.0057

Rf	Rg	IES Rcs,h1
71	95	-17%

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	ALED5T52/D10	Sample ID.	B1
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
WROST CASE	120.00	60	0.442	53.0	0.999
NON-WROST CASE	277.00	60	0.192	51.3	0.964

Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
6566	174.0	173.5	169.2	168.7	123.9

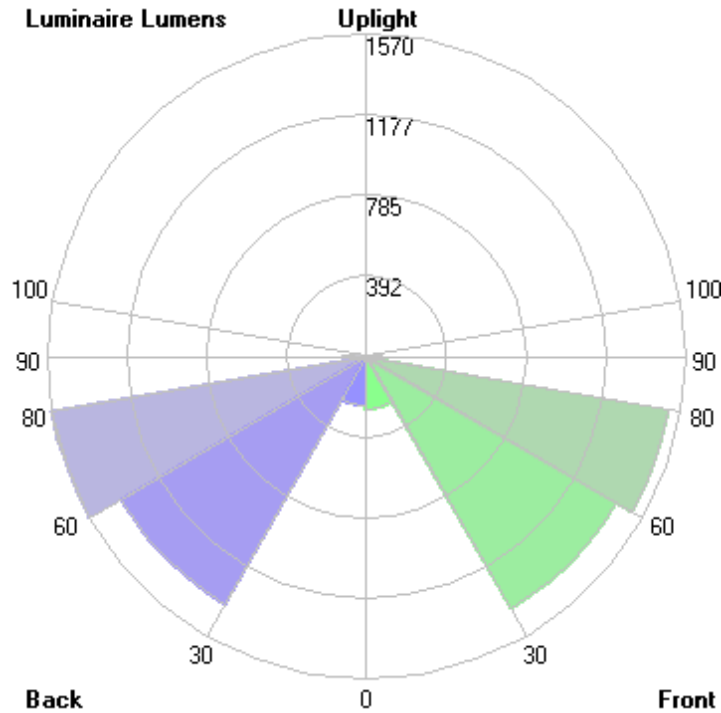
Zonal Lumen Requirement (0°-90°)	BUG rating
100.00%	B3-U0-G2

4.2 Goniophotometer Test

	Zonal (lm)		Total (lm)	Percent
0-10	18.82	0 - 10	18.82	0.29%
10-20	140.39	0 - 20	159.21	2.42%
20-30	337.31	0 - 30	496.52	7.56%
30-40	555.98	0 - 40	1052.50	16.03%
40-50	889.54	0 - 50	1942.04	29.58%
50-60	1360.09	0 - 60	3302.13	50.29%
60-70	1759.18	0 - 70	5061.31	77.08%
70-80	1316.20	0 - 80	6377.51	97.12%
80-90	188.92	0 - 90	6566.43	100.00%
90-100	0.00	0 - 100	6566.43	100.00%
100-110	0.00	0 - 110	6566.43	100.00%
110-120	0.00	0 - 120	6566.43	100.00%
120-130	0.00	0 - 130	6566.43	100.00%
130-140	0.00	0 - 140	6566.43	100.00%
140-150	0.00	0 - 150	6566.43	100.00%
150-160	0.00	0 - 160	6566.43	100.00%
160-170	0.00	0 - 170	6566.43	100.00%
170-180	0.00	0 - 180	6566.43	100.00%

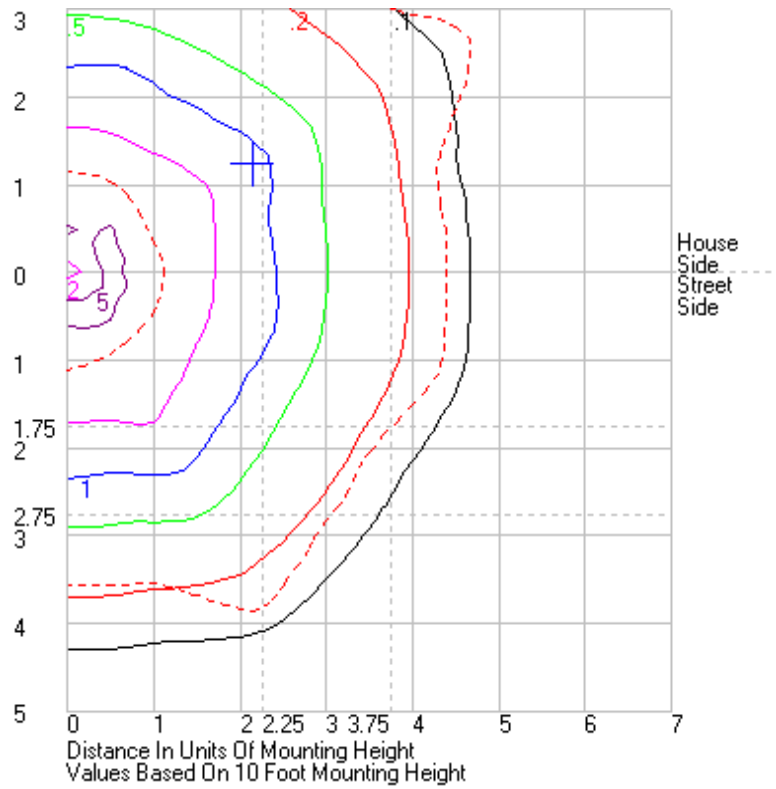
4.2 Goniophotometer Test

LCS/BUG



	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	255.3	N.A.	3.9
FM - Front-Medium (30-60)	1416.0	N.A.	21.6
FH - Front-High (60-80)	1505.5	N.A.	22.9
FVH - Front-Very High (80-90)	73.5	N.A.	1.1
BL - Back-Low (0-30)	241.3	N.A.	3.7
BM - Back-Medium (30-60)	1389.6	N.A.	21.2
BH - Back-High (60-80)	1569.8	N.A.	23.9
BVH - Back-Very High (80-90)	115.4	N.A.	1.8
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	6566.4	N.A.	100.0
BUG Rating	B3-U0-G2		

Isolines



Vert. Angles	Horizontal Angles									
	0	15	30	45	60	75	90	105	120	135
0	130.592	130.592	130.592	130.592	130.592	130.592	130.592	130.592	130.592	130.592
1	140.413	140.373	139.433	137.574	135.411	133.268	131.136	128.984	126.962	124.657
2	148.094	149.064	146.730	140.658	134.802	131.470	128.054	125.527	125.214	126.467
3	155.633	155.643	151.156	146.548	141.555	137.078	130.702	129.145	130.904	132.258
4	167.447	165.113	157.523	155.542	150.762	142.637	136.573	137.422	136.088	138.180
5	182.374	174.521	166.315	164.617	160.454	149.772	145.426	147.104	147.003	148.599
6	198.139	186.285	175.279	171.409	167.477	160.312	157.998	154.148	157.958	159.615
7	218.725	201.515	185.820	179.827	176.411	171.388	170.823	162.162	165.972	166.831
8	246.982	229.064	207.113	196.997	189.610	191.944	187.740	174.218	174.966	172.763
9	291.832	265.860	249.124	229.084	218.180	216.785	207.700	185.173	181.131	180.898
10	341.241	310.549	302.333	268.791	266.800	253.783	230.398	206.295	192.854	193.672
11	384.667	363.580	365.607	330.104	318.674	299.786	272.318	245.820	222.859	221.737
12	437.774	391.367	414.004	390.659	368.244	334.611	315.662	298.482	265.557	271.448
13	481.422	441.088	459.067	435.247	401.948	387.618	359.129	355.137	326.526	330.983
14	510.487	486.687	484.838	467.233	439.088	438.229	412.468	399.239	366.486	395.106
15	535.641	512.043	508.961	496.389	479.118	470.901	458.582	452.145	410.963	444.211
16	544.938	528.708	543.220	531.790	499.340	507.041	487.789	503.301	458.683	488.688
17	582.533	560.916	565.878	565.403	521.604	530.416	524.534	530.638	493.873	526.869
18	614.822	585.848	584.564	576.843	529.729	555.610	562.649	547.253	539.532	543.554
19	634.620	598.480	601.037	576.702	549.405	577.308	562.159	552.720	576.045	555.055
20	649.384	613.013	619.208	587.899	582.614	589.365	587.455	553.842	608.556	566.252
21	669.536	633.053	645.868	606.494	616.499	606.828	622.351	576.015	637.490	572.538
22	679.935	657.863	667.727	625.383	644.766	622.462	658.591	601.401	661.774	585.686
23	693.871	691.537	695.135	655.681	673.508	649.334	679.895	624.241	678.217	617.126
24	719.611	719.743	714.124	696.428	690.435	685.756	688.585	647.414	691.880	648.829
25	744.028	754.002	738.399	738.732	711.264	703.603	699.702	667.343	709.910	677.702
26	764.937	779.288	754.225	772.921	732.860	714.427	725.736	701.471	715.589	699.783
27	778.338	810.162	778.772	808.130	757.893	720.248	752.466	736.812	726.453	724.402
28	791.991	838.105	801.794	844.603	789.282	735.973	779.146	766.847	749.768	765.887
29	793.446	852.071	829.494	876.952	812.072	768.171	795.376	805.604	773.628	806.129
30	790.859	862.380	850.657	894.203	819.297	795.346	808.292	836.427	795.326	830.111
31	808.696	872.880	869.959	907.665	815.983	849.181	821.834	866.210	822.461	857.104
32	827.625	860.277	889.919	916.336	831.809	918.973	836.296	894.375	849.676	894.961
33	808.302	847.776	895.689	918.519	859.136	944.370	855.568	897.801	892.293	920.631
34	803.633	865.927	906.250	919.105	887.999	921.035	854.103	890.868	921.055	926.361
35	807.473	881.935	910.009	934.335	855.698	898.438	832.759	895.517	916.962	940.883
36	809.778	880.045	916.225	958.721	853.658	866.563	826.897	912.202	910.828	958.155
37	824.310	900.267	933.243	971.100	858.084	847.746	834.841	918.579	910.616	951.768
38	853.284	927.847	943.430	967.685	883.309	841.349	844.148	919.459	920.196	939.064
39	910.838	951.919	956.194	981.247	888.999	869.696	876.306	930.353	930.595	941.217
40	962.409	974.324	993.556	996.679	925.997	919.529	915.234	946.442	942.346	958.973
41	987.543	1002.520	1057.244	1010.706	976.537	970.100	966.553	967.563	983.551	976.982
42	999.236	1038.963	1083.005	1044.561	1027.533	1003.207	1015.880	993.950	1048.664	1005.299
43	1029.281	1086.441	1106.461	1094.647	1060.286	1029.291	1048.402	1029.342	1097.082	1054.233
44	1051.524	1134.687	1127.825	1146.552	1085.299	1059.478	1072.272	1080.781	1114.051	1106.137
45	1086.906	1164.945	1150.493	1192.261	1104.975	1083.652	1090.311	1126.875	1135.263	1155.920
46	1134.121	1189.037	1175.869	1240.184	1128.856	1127.390	1115.809	1180.690	1169.785	1192.342
47	1173.888	1211.968	1213.140	1276.242	1163.580	1183.024	1152.302	1222.226	1205.874	1219.366
48	1221.205	1229.179	1259.911	1300.467	1210.947	1221.579	1200.235	1240.720	1245.894	1239.810
49	1254.504	1266.955	1314.049	1325.560	1257.910	1275.808	1250.320	1266.278	1297.900	1268.511
50	1297.304	1293.797	1367.914	1359.122	1301.791	1311.523	1297.859	1288.885	1350.168	1293.928
51	1329.087	1341.184	1430.400	1401.851	1342.124	1337.425	1329.906	1320.921	1402.437	1325.984
52	1360.366	1388.591	1504.629	1466.085	1382.457	1363.316	1361.790	1358.334	1459.809	1371.159
53	1380.577	1435.160	1568.469	1504.801	1405.388	1389.410	1389.865	1398.536	1516.645	1416.919
54	1430.532	1479.324	1624.497	1529.995	1437.757	1428.288	1420.860	1467.833	1594.118	1478.081
55	1447.388	1502.537	1675.684	1563.851	1464.680	1454.341	1451.471	1525.852	1655.664	1510.440
56	1447.570	1514.634	1707.427	1597.958	1493.967	1466.165	1492.259	1562.547	1714.360	1533.563

57	1465.539	1528.943	1751.378	1620.020	1500.890	1478.867	1512.249	1602.173	1755.673	1568.478
58	1489.420	1551.925	1807.730	1636.998	1512.128	1493.725	1523.002	1610.490	1768.296	1580.162
59	1525.842	1575.584	1891.600	1681.556	1518.121	1530.076	1523.295	1629.691	1786.760	1600.162
60	1518.131	1605.174	1965.212	1725.952	1536.837	1567.610	1536.382	1651.601	1843.859	1641.121
61	1527.954	1609.207	2040.320	1747.407	1548.449	1598.989	1561.223	1667.427	1905.789	1683.314
62	1545.316	1626.579	2139.461	1754.350	1567.196	1648.933	1584.123	1688.185	1993.337	1718.766
63	1540.910	1619.494	2181.078	1781.959	1570.480	1714.704	1596.099	1699.767	2094.125	1730.944
64	1572.997	1622.718	2209.819	1805.203	1580.697	1774.541	1617.584	1703.274	2195.640	1745.729
65	1669.580	1631.076	2231.103	1835.057	1604.871	1855.885	1640.636	1707.609	2288.495	1754.188
66	1704.880	1645.164	2276.701	1853.480	1668.782	1944.121	1715.724	1718.503	2336.064	1780.454
67	1642.405	1625.336	2326.898	1891.186	1733.804	1995.500	1794.521	1729.398	2366.938	1830.701
68	1573.936	1594.896	2303.310	1887.315	1697.513	1911.418	1766.507	1750.893	2408.918	1850.913
69	1521.415	1575.766	2264.968	1813.106	1610.874	1834.592	1693.400	1732.632	2387.089	1838.614
70	1480.092	1544.629	2184.605	1748.215	1582.810	1733.875	1670.116	1702.900	2331.253	1813.632
71	1451.977	1489.531	2069.244	1713.188	1527.168	1661.131	1617.332	1687.266	2286.706	1768.306
72	1385.600	1427.611	1933.126	1635.169	1470.683	1598.595	1579.626	1625.922	2166.424	1687.832
73	1318.728	1373.978	1798.402	1592.107	1416.070	1591.905	1517.989	1545.791	2023.019	1617.817
74	1231.766	1303.812	1629.499	1539.980	1380.618	1565.811	1476.130	1496.211	1874.319	1550.298
75	1113.454	1146.329	1490.855	1422.507	1298.001	1452.714	1403.427	1445.529	1719.615	1494.796
76	967.877	1012.889	1381.992	1266.945	1214.838	1358.789	1334.625	1381.982	1663.688	1410.138
77	836.003	891.404	1260.760	1118.305	1069.109	1250.452	1225.480	1242.266	1547.135	1252.453
78	711.961	755.336	1103.449	980.731	912.920	1128.644	1070.271	1081.721	1421.891	1086.097
79	606.019	633.740	911.960	829.040	781.078	1045.026	916.012	956.740	1309.512	962.217
80	509.800	504.646	699.763	677.307	668.849	900.530	789.212	788.717	1098.720	837.933
81	397.542	375.521	519.097	519.299	561.553	763.441	661.663	665.665	914.395	714.275
82	234.309	231.873	329.053	361.039	454.257	623.624	542.119	532.185	697.075	574.903
83	112.389	118.190	170.075	216.957	336.501	468.072	422.200	398.229	497.844	419.452
84	58.282	49.843	102.101	108.882	206.103	312.621	287.719	266.406	299.402	261.939
85	34.441	30.136	64.002	54.552	84.153	152.662	143.273	126.972	122.122	128.438
86	10.591	11.268	42.516	32.491	39.727	63.961	58.706	51.298	65.083	49.024
87	5.437	6.539	21.455	10.429	19.909	45.043	35.321	31.763	46.023	31.056
88	2.456	3.729	6.993	5.730	7.529	26.801	13.087	13.047	27.165	13.118
89	0.768	0.910	3.861	2.779	4.346	14.320	8.327	8.055	12.814	6.933
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	130.592	130.592	130.592	130.592	130.592	130.592	130.592	130.592	130.592	130.592
1	122.708	121.616	123.738	124.810	126.235	128.488	130.752	133.491	134.107	135.168
2	126.356	124.537	124.163	125.305	128.256	131.439	135.542	139.069	142.879	144.314
3	130.873	128.215	129.054	132.642	136.816	139.999	142.394	148.256	152.824	155.795
4	139.554	136.159	139.443	142.516	147.286	152.702	154.077	157.099	159.504	162.536
5	151.955	148.397	151.874	156.785	164.875	172.950	176.973	181.528	186.387	188.195
6	161.303	160.120	163.465	169.276	176.032	182.068	188.800	193.940	198.758	179.180
7	169.024	170.721	171.762	179.534	182.465	194.349	209.963	205.729	208.265	205.759
8	179.332	185.567	181.434	187.973	202.010	223.222	238.816	243.172	248.892	252.257
9	194.238	203.566	199.544	208.164	236.350	260.514	275.855	287.123	298.907	308.173
10	214.622	229.690	227.386	247.335	287.942	305.122	314.894	332.661	343.464	365.212
11	249.155	263.788	272.843	300.473	344.535	342.878	368.254	391.468	398.896	418.229
12	291.802	302.858	320.079	359.017	405.293	391.478	421.635	418.300	445.131	471.548
13	333.783	347.689	358.563	421.887	438.603	441.412	450.214	457.016	483.473	523.615
14	388.264	402.979	404.060	458.148	459.290	472.700	491.174	501.129	509.769	533.812
15	439.522	447.152	452.175	478.198	494.570	503.615	524.140	540.714	516.389	546.293
16	463.090	493.266	482.483	514.570	548.637	527.960	561.138	577.763	523.817	546.192
17	493.206	525.070	506.303	548.900	587.323	538.107	580.946	600.067	551.548	550.679
18	519.198	569.830	525.484	553.235	591.073	543.483	589.597	609.749	589.142	568.646
19	543.028	595.893	565.019	556.823	592.871	560.583	624.958	624.766	623.563	591.426
20	579.046	598.076	588.930	554.933	609.415	592.103	660.006	643.179	657.874	614.882
21	610.488	599.673	606.717	581.684	625.949	626.090	681.967	661.835	681.128	640.481
22	632.336	623.179	634.084	614.731	651.396	659.875	702.300	684.735	693.487	668.111
23	646.949	648.253	650.698	647.778	681.097	684.958	709.940	696.287	709.142	698.884
24	656.691	668.424	667.252	685.574	692.891	699.753	725.574	711.769	729.538	734.326
25	671.709	688.293	681.077	733.406	700.855	720.976	740.208	722.775	748.767	770.466
26	694.195	697.378	707.181	765.766	713.770	750.111	753.901	740.450	766.756	812.233
27	714.882	693.639	729.556	793.840	733.507	789.131	766.170	786.342	783.037	853.294
28	732.891	707.838	745.159	819.025	762.481	834.588	784.502	823.289	791.940	883.501
29	743.472	738.995	761.551	830.323	792.931	872.698	801.208	892.324	805.270	899.691
30	755.043	775.558	769.697	847.089	831.920	883.905	839.732	913.607	834.699	904.148
31	764.108	837.832	772.122	869.727	855.638	885.553	841.965	900.419	830.556	902.602
32	799.136	892.304	788.423	888.706	874.557	889.727	823.683	870.252	817.792	910.555
33	831.475	894.325	807.241	891.697	884.673	909.797	823.481	844.825	818.711	936.396
34	826.220	873.163	793.962	893.051	889.898	914.992	831.920	820.480	825.007	925.684
35	812.041	843.229	785.988	905.694	902.460	897.245	837.407	819.772	836.892	923.541
36	805.331	821.157	782.370	923.481	910.919	901.148	851.950	837.549	869.656	939.630
37	807.554	819.874	789.384	918.367	921.086	908.544	880.702	879.236	904.774	957.427
38	820.005	829.525	811.829	921.742	939.903	923.218	931.030	907.705	954.678	974.607
39	851.071	860.833	848.504	941.237	979.296	951.474	966.512	943.541	986.330	1006.421
40	910.110	888.605	903.299	966.543	1003.601	986.472	994.051	969.777	1009.200	1040.418
41	954.395	907.735	946.917	993.081	1036.719	1032.626	1007.593	1008.624	1030.635	1086.208
42	981.944	932.718	983.460	1029.716	1085.178	1078.457	1038.397	1037.002	1064.187	1123.914
43	990.969	967.321	997.902	1075.981	1113.424	1128.805	1059.528	1090.908	1086.845	1165.359
44	1017.497	989.018	1020.367	1120.741	1136.739	1165.308	1105.693	1132.969	1138.275	1203.479
45	1031.979	1036.719	1035.284	1160.286	1166.632	1200.821	1153.434	1186.662	1176.152	1244.509
46	1069.715	1072.242	1075.971	1186.743	1205.268	1226.218	1203.600	1228.411	1231.048	1266.369
47	1106.420	1129.109	1109.745	1215.495	1248.471	1256.819	1260.437	1267.521	1268.855	1311.068
48	1155.718	1166.804	1162.165	1241.720	1302.326	1291.725	1303.367	1312.968	1301.760	1344.216
49	1205.662	1215.424	1204.550	1278.739	1355.929	1323.994	1355.221	1342.397	1353.918	1394.352
50	1243.004	1257.344	1244.075	1317.960	1422.629	1371.431	1390.421	1368.218	1388.399	1434.048
51	1301.417	1286.621	1285.459	1365.065	1486.155	1408.571	1421.881	1398.000	1407.490	1485.205

52	1329.522	1310.573	1310.937	1393.675	1559.677	1455.160	1441.838	1426.519	1439.112	1537.130
53	1357.071	1327.763	1338.405	1433.311	1620.343	1511.117	1484.983	1424.953	1468.712	1588.742
54	1384.003	1344.903	1365.449	1467.146	1684.062	1539.667	1491.562	1445.610	1472.815	1578.777
55	1411.835	1354.110	1401.808	1495.524	1709.297	1563.093	1493.179	1483.388	1485.367	1592.410
56	1428.005	1375.807	1409.087	1536.688	1753.187	1588.580	1512.967	1523.507	1501.577	1608.105
57	1438.896	1389.491	1430.744	1578.868	1799.039	1614.189	1528.712	1554.220	1531.865	1628.528
58	1433.826	1427.186	1440.991	1609.772	1849.346	1635.998	1567.590	1573.734	1556.372	1665.699
59	1438.887	1463.023	1465.226	1653.744	1918.310	1696.472	1582.516	1617.584	1579.434	1689.449
60	1461.951	1488.054	1498.272	1697.614	2009.568	1720.161	1586.145	1704.759	1594.623	1692.976
61	1483.376	1533.864	1508.621	1699.524	2114.610	1730.883	1608.065	1740.646	1614.229	1700.575
62	1500.728	1588.479	1527.449	1688.104	2210.405	1742.131	1627.286	1824.496	1616.149	1716.058
63	1513.239	1634.482	1533.927	1697.655	2270.819	1748.599	1684.759	1905.314	1674.097	1751.146
64	1528.803	1722.111	1546.600	1697.200	2307.676	1741.828	1762.960	1939.432	1711.965	1787.376
65	1550.500	1736.765	1570.763	1699.201	2306.069	1726.568	1815.552	1996.996	1700.030	1777.462
66	1589.560	1777.998	1595.159	1700.929	2289.354	1718.301	1826.254	1924.505	1691.379	1769.226
67	1660.384	1853.379	1657.574	1709.984	2299.450	1688.428	1753.632	1802.323	1622.658	1742.677
68	1671.460	1806.557	1644.507	1685.618	2281.188	1667.448	1634.957	1672.612	1568.105	1692.804
69	1651.551	1724.244	1564.487	1672.400	2232.073	1614.836	1547.246	1577.898	1522.012	1639.888
70	1601.395	1638.221	1516.797	1639.959	2124.069	1574.037	1519.637	1518.131	1471.966	1557.817
71	1544.388	1529.439	1485.044	1581.617	2009.295	1532.673	1455.595	1498.131	1401.568	1524.378
72	1484.872	1458.010	1444.983	1524.811	1898.381	1475.837	1414.150	1455.716	1327.945	1476.544
73	1405.630	1385.600	1384.559	1477.747	1787.467	1428.793	1349.501	1391.441	1253.362	1340.962
74	1339.062	1352.048	1327.470	1421.891	1713.592	1331.704	1284.843	1312.190	1131.766	1204.682
75	1257.122	1344.519	1270.240	1323.215	1632.814	1234.282	1194.717	1217.890	948.008	1048.078
76	1177.385	1311.129	1179.578	1223.054	1521.314	1098.851	1003.511	1109.927	832.648	922.642
77	1084.490	1262.832	1078.972	1087.249	1355.807	962.712	866.210	1009.938	715.003	776.963
78	940.418	1174.525	931.869	980.580	1189.856	834.699	741.754	863.956	609.041	642.805
79	834.224	1051.221	820.247	831.687	983.814	721.067	622.937	727.049	527.293	525.595
80	725.887	949.433	722.118	695.104	766.180	589.920	532.801	587.495	419.694	359.755
81	624.332	805.412	616.186	565.262	555.348	432.670	406.678	421.544	296.734	237.563
82	522.190	646.120	511.932	420.159	374.914	294.005	279.018	275.188	174.087	115.411
83	420.048	482.655	388.840	288.285	258.259	176.694	163.809	139.969	53.673	33.966
84	282.242	319.068	255.521	175.310	137.604	60.960	49.398	49.297	27.195	23.163
85	152.217	183.576	134.512	62.799	64.093	33.896	27.246	28.731	17.645	12.370
86	59.403	89.742	46.468	33.683	45.214	20.303	14.169	19.222	8.176	4.871
87	37.908	46.518	30.773	20.162	28.903	6.791	5.558	10.146	2.698	1.789
88	18.110	25.427	15.068	6.680	12.582	2.820	1.769	1.122	0.576	0.515
89	6.468	11.592	4.720	2.446	1.888	0.889	0.465	0.283	0.283	0.283
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	130.592	130.592	130.592	130.592	130.592
1	138.038	135.997	136.977	137.473	140.413
2	146.406	147.397	146.224	146.315	148.094
3	155.269	153.683	151.075	150.358	155.633
4	162.869	159.736	158.281	156.765	167.447
5	168.478	167.942	169.054	169.185	182.374
6	179.160	178.432	181.333	183.708	198.139
7	198.301	201.454	205.507	209.468	218.725
8	231.388	240.504	242.343	243.859	246.982
9	293.156	295.966	290.842	290.357	291.832
10	339.765	363.060	345.768	333.510	341.241
11	388.204	421.240	394.389	378.340	384.667
12	422.645	463.878	450.730	438.168	437.774
13	460.260	497.127	499.158	485.818	481.422
14	509.628	525.464	517.945	527.061	510.487
15	548.142	550.901	530.062	556.631	535.641
16	585.504	562.573	554.772	572.821	544.938
17	617.045	576.297	587.727	589.072	582.533
18	636.792	590.375	607.596	599.046	614.822
19	656.651	608.020	618.662	614.892	634.620
20	680.066	631.153	636.307	634.134	649.384
21	691.648	648.354	653.952	652.820	669.536
22	700.076	665.736	672.194	666.282	679.935
23	712.881	694.750	689.020	682.684	693.871
24	726.999	729.849	708.525	699.349	719.811
25	747.484	777.054	729.394	710.203	744.028
26	763.017	812.698	754.326	724.563	764.937
27	786.746	836.720	767.716	753.224	778.338
28	809.747	856.468	777.044	784.265	791.991
29	854.578	877.882	786.574	827.685	793.446
30	897.559	887.968	785.280	867.817	790.859
31	904.774	900.348	800.056	891.920	808.696
32	903.875	895.234	821.955	861.975	827.625
33	898.408	896.649	800.126	833.971	808.302
34	908.120	921.146	790.869	810.596	803.633
35	915.072	946.007	798.469	796.276	807.473
36	925.482	942.935	808.939	790.172	809.778
37	943.137	953.637	834.578	806.584	824.310
38	973.213	964.420	873.345	863.249	853.284
39	1019.438	976.760	931.171	911.758	910.838
40	1063.247	1003.288	980.024	936.932	962.409
41	1103.783	1044.430	1003.500	955.254	987.543
42	1119.791	1089.907	1013.334	983.622	999.236
43	1139.548	1147.229	1033.960	1006.846	1029.281
44	1163.196	1194.990	1058.265	1045.835	1051.524
45	1198.092	1223.994	1098.861	1095.617	1086.906
46	1232.130	1247.986	1150.341	1141.175	1134.121

47	1287.167	1268.532	1194.616	1191.958	1173.888
48	1341.235	1305.186	1246.349	1224.964	1221.205
49	1409.430	1345.772	1275.899	1266.935	1254.504
50	1499.677	1381.093	1321.558	1298.850	1297.304
51	1568.105	1415.767	1355.423	1337.647	1329.087
52	1644.093	1448.419	1383.741	1352.745	1360.396
53	1711.803	1495.220	1397.323	1389.632	1380.577
54	1766.790	1526.064	1440.749	1399.536	1430.532
55	1820.201	1556.433	1442.436	1416.181	1447.388
56	1891.812	1591.390	1439.172	1450.592	1447.570
57	1987.779	1621.394	1455.281	1471.168	1465.539
58	2068.091	1658.312	1483.497	1528.985	1489.420
59	2134.650	1685.224	1508.237	1543.679	1525.842
60	2182.371	1700.292	1509.723	1595.836	1518.131
61	2214.236	1719.322	1534.412	1691.055	1527.954
62	2215.630	1728.175	1557.736	1718.463	1545.316
63	2220.936	1751.570	1582.314	1767.295	1540.910
64	2247.232	1777.907	1673.057	1829.791	1572.997
65	2259.965	1746.245	1689.246	1888.578	1689.580
66	2274.377	1731.005	1672.319	1910.892	1704.880
67	2342.350	1713.097	1646.478	1749.398	1642.405
68	2299.854	1688.418	1569.035	1640.636	1573.936
69	2204.241	1624.942	1490.430	1627.872	1521.415
70	2019.371	1585.033	1458.172	1613.107	1480.092
71	1886.072	1524.265	1393.604	1569.783	1451.977
72	1751.166	1476.736	1323.923	1485.569	1385.600
73	1590.318	1334.898	1254.211	1377.242	1318.728
74	1446.337	1192.797	1171.210	1268.916	1231.766
75	1293.180	1058.882	992.515	1192.029	1113.454
76	1139.781	906.745	874.082	1133.656	967.877
77	942.894	788.484	744.573	991.707	836.003
78	722.744	650.112	644.948	818.792	711.961
79	547.101	525.080	552.963	682.916	606.019
80	371.155	382.817	448.325	559.855	509.800
81	234.117	257.704	316.289	411.528	397.542
82	139.615	132.591	194.056	280.180	234.309
83	70.035	41.869	73.249	172.793	112.389
84	37.271	28.347	36.068	67.609	58.282
85	24.810	14.836	21.526	45.598	34.441
86	12.350	5.376	7.105	28.378	10.591
87	2.658	1.769	2.405	11.157	5.437
88	0.455	0.515	0.536	0.879	2.456
89	0.283	0.283	0.263	0.273	0.768
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.	ALED5T52/D10	Sample ID.	B1
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
120.00	60	0.442	53.0	0.999	3.27%
277.00	60	0.192	51.3	0.964	6.42%

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*****