

# Photometric Test Report

## Relevant Standards

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

## Prepared For

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## Project Number

**DLF2110112**

## Report Number

**DLF2110112-13a**

## Test Date

**2021/11/1**

## Issue Date

**2021/11/4**

## 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		13850
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	153.0
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		90.5
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.54%
		20.00%	277V	11.81%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.998
		0.9	277V	0.905
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	5029±355	5004
		4 step	5029±220	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		85
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥-40		16
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		93
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%		0.64%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		120
(Goniophotometer - Section 4.2)		Non-Worst Case		277
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.755
(Goniophotometer - Section 4.2)		Non-Worst Case		0.357
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		90.5
(Goniophotometer - Section 4.2)		Non-Worst Case		89.4

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2021/11/1	ALEDM5T	M1
2	Goniophotometer Test	2021/11/1	ALEDM5T	M1
3	THD and PF Test	2021/11/1	ALEDM5T	M1

### 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.

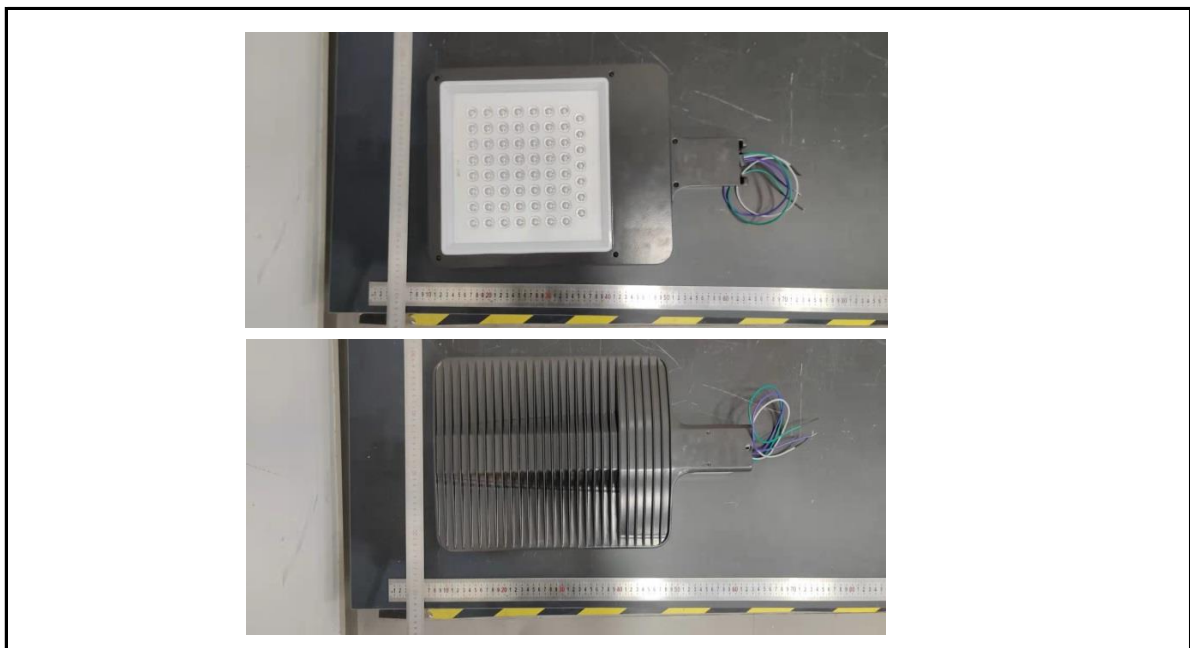
## 3.0 Production Description

**Luminaire Description:** ALEDM5T

**Description:** 90W/12,000 lm @ 5000K

**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.	ALEDM5T	Sample ID.	M1
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
120.03	60	0.774	92.8	0.998
277.98	60	0.362	91.1	0.905

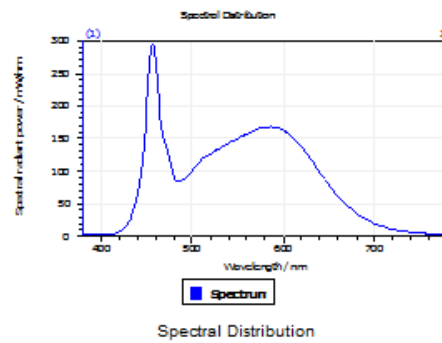
#### Test Result

CCT (K)	CRI	R9	Duv
5004	85	16	0.00062

Rf	Rg	IES Rcs,h1
83	93	-12%

## 4.1 Integrating Sphere Test

### Results



#### Spectral values

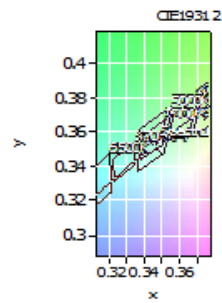
DominantWavelength 572.07 nm  
Purity 0.094  
PeakWavelength 456.86 nm  
Radiant Power 33.02 W  
Width50%:

Date: 2021/11/1 17:00:25

#### Color Coordinates

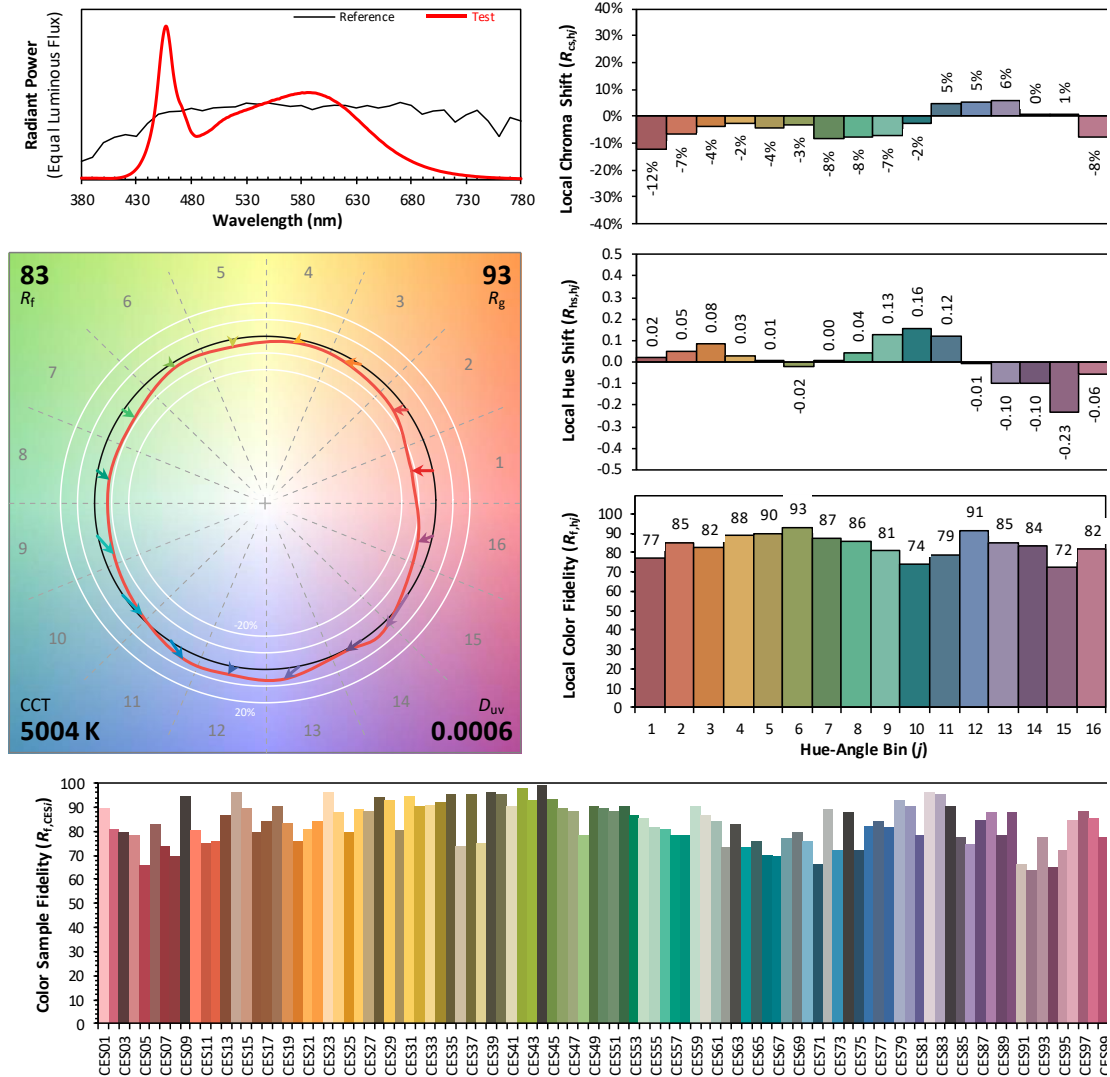
Correlated Color Temporal 5004 K  
x: 0.3451 u: 0.2109 u': 0.2109  
y: 0.3529 v: 0.3235 v': 0.4853

CRI01	84.2	CRI09	15.5
CRI02	93.9	CRI10	83.9
CRI03	94.6	CRI11	80.0
CRI04	80.8	CRI12	63.4
CRI05	83.9	CRI13	87.6
CRI06	88.8	CRI14	97.9
CRI07	84.7	CRI15	79.4
CRI08	67.0	CRI16	74.5
ResultsCRI	84.8		



PlanckDistance 6.2E-004

## 4.1 Integrating Sphere Test



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

$x$  0.3451  
 $y$  0.3529  
 $u'$  0.2109  
 $v'$  0.4853

CIE 13.3-1995  
 (CRI)

$R_a$  85  
 $R_g$  16

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	ALEDM5T	Sample ID.	M1
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  $\pm 0.2$  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  $0.5^{\circ}$  vertical intervals and  $10^{\circ}$  horizontal intervals.

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.08	60	0.755	90.5	0.998
NON-WORST CASE	277.00	60	0.357	89.4	0.905

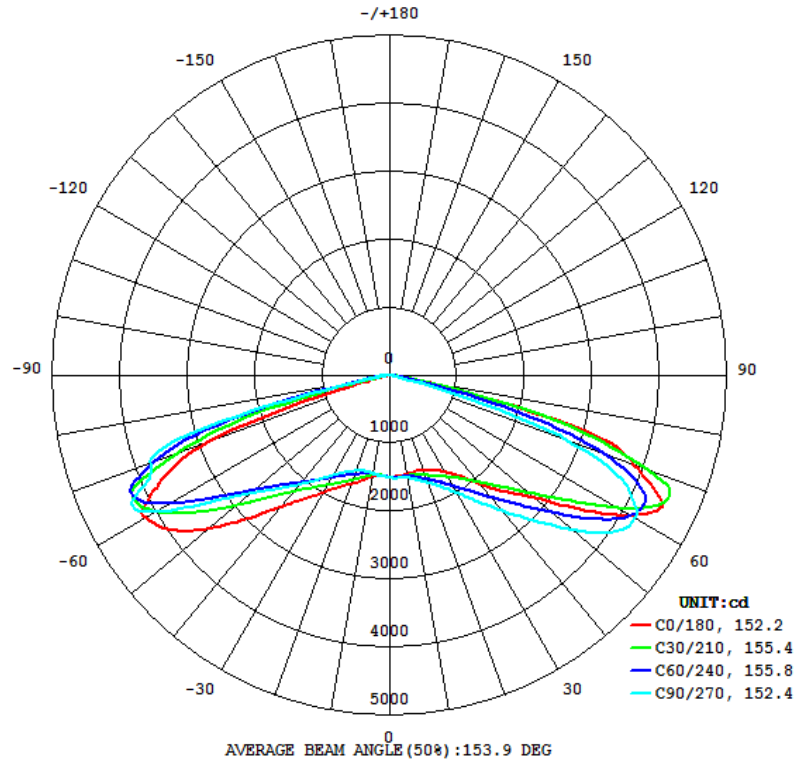
#### Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
13850	159.3	159.0	152.2	152.4	153.0

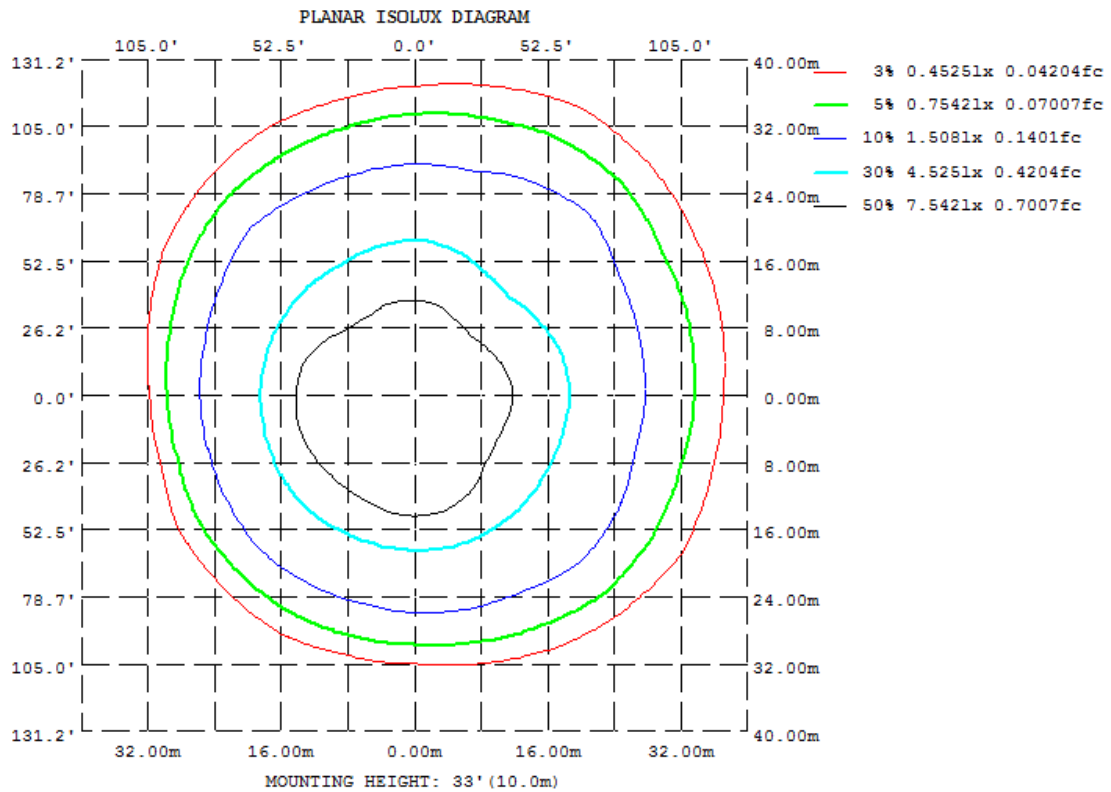
Zonal Lumen Requirement ( $0^{\circ}$ - $90^{\circ}$ )	Zonal Lumen Requirement ( $80^{\circ}$ - $90^{\circ}$ )	BUG rating
100.00%	0.64%	B4-U0-G2

## 4.2 Goniophotometer Test

### Light Distrubtion Curve



### Isolux Plot





## 4.2 Goniophotometer Test

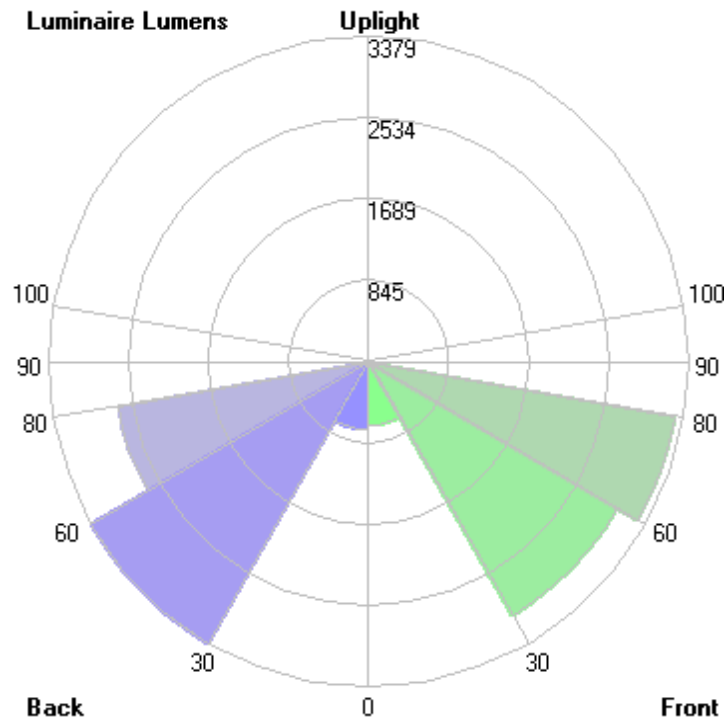
### Zonal Lumen Summary

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315
10	1483	1506	1534	1550	1515	1485	1472	1477
20	1489	1608	1688	1753	1708	1600	1504	1502
30	1649	1795	2004	2024	1991	1793	1700	1643
40	2097	2146	2603	2466	2530	2086	2104	1893
50	2806	2831	3538	3276	3507	2693	2703	2361
60	4127	3980	4207	4252	4184	3871	4026	3404
70	3857	4098	2815	2974	2845	4058	3775	4961
80	301.9	410.0	69.47	107.8	90.51	315.6	267.2	893.0
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	143.39	0 - 10	143.39	1.04%
10-20	439.73	0 - 20	583.12	4.21%
20-30	791.91	0 - 30	1375.03	9.93%
30-40	1272.95	0 - 40	2647.98	19.12%
40-50	2010.23	0 - 50	4658.21	33.63%
50-60	3134.77	0 - 60	7792.98	56.27%
60-70	3990.99	0 - 70	11783.97	85.09%
70-80	1976.56	0 - 80	13760.53	99.36%
80-90	89.00	0 - 90	13849.53	100.00%
90-100	0.00	0 - 100	13849.53	100.00%
100-110	0.00	0 - 110	13849.53	100.00%
110-120	0.00	0 - 120	13849.53	100.00%
120-130	0.00	0 - 130	13849.53	100.00%
130-140	0.00	0 - 140	13849.53	100.00%
140-150	0.00	0 - 150	13849.53	100.00%
150-160	0.00	0 - 160	13849.53	100.00%
160-170	0.00	0 - 170	13849.53	100.00%
170-180	0.00	0 - 180	13849.53	100.00%

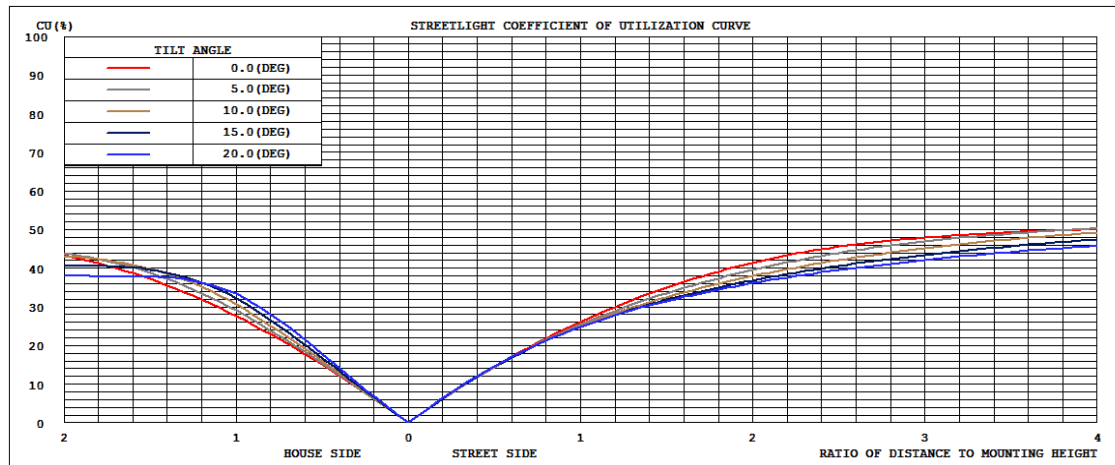
## 4.2 Goniophotometer Test

LCS/BUG

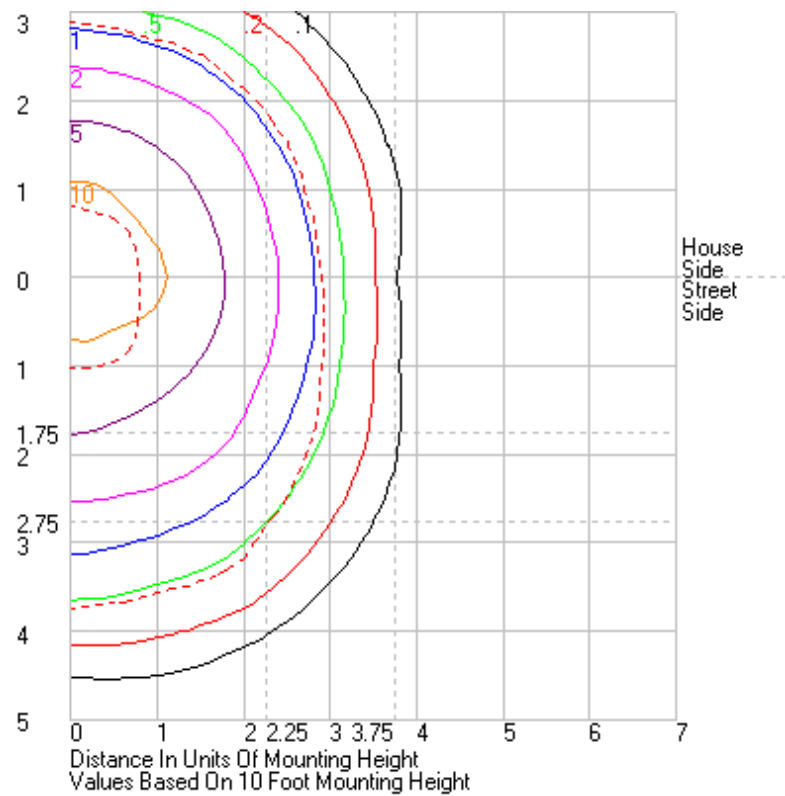


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	663.5	N.A.	4.8
FM - Front-Medium (30-60)	3039.2	N.A.	21.9
FH - Front-High (60-80)	3281.6	N.A.	23.7
FVH - Front-Very High (80-90)	59.4	N.A.	0.4
BL - Back-Low (0-30)	711.5	N.A.	5.1
BM - Back-Medium (30-60)	3378.8	N.A.	24.4
BH - Back-High (60-80)	2685.9	N.A.	19.4
BVH - Back-Very High (80-90)	29.6	N.A.	0.2
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>13849.5</b>	<b>N.A.</b>	<b>100.0</b>
<b>BUG Rating</b>	<b>B4-U0-G2</b>		

## Coefficients of Utilization



## 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	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62	1506.62
1	1506.88	1509.58	1511.75	1513.83	1514.19	1515.07	1515.88	1516.28	1516.1	1514.95	1513.61	1512.96	1505.02	1504.76	1504.53	1504.56	1504.37	1504.57	1505.68	1507.32	1508.67	1509.55	1510.24	1512.45	1506.88
2	1504.88	1509.17	1513.65	1516.95	1518.7	1520.07	1520.72	1520.76	1520.34	1517.03	1513.22	1510.33	1500.92	1499.55	1499.26	1500.22	1500.06	1500.32	1501.38	1503.04	1504.78	1505.65	1506.33	1509.13	1504.88
3	1501.28	1507.36	1513.2	1518.58	1520.87	1522.22	1523.54	1524.25	1523.06	1517.93	1511.63	1506.7	1495.97	1493.54	1493.09	1494.84	1496.65	1497.38	1498.06	1499.62	1500.7	1500.75	1501.53	1504.6	1501.28
4	1500.11	1506.43	1512.73	1516.85	1519.32	1521.8	1523.82	1524.17	1523.46	1518.58	1510.73	1504.2	1491.19	1487.91	1487.78	1489.83	1493.49	1495.36	1496.48	1497.85	1496.88	1496.23	1496.9	1500.99	1500.11
5	1499.26	1507.33	1512.97	1514.78	1516.14	1518.63	1522.05	1524.09	1523.85	1519.07	1511.37	1503.27	1487.91	1483.76	1483.39	1486.02	1489.88	1493.78	1494.89	1495.36	1494.41	1493.56	1495.99	1499.33	1499.26
6	1496.33	1506.23	1512.32	1512.32	1511.74	1514.68	1519.58	1523.6	1524.25	1520.62	1514.48	1505.3	1486.81	1481.36	1480.91	1482.86	1487.87	1491.92	1492.16	1492.36	1491.94	1492.85	1492.61	1495.59	1496.33
7	1493.37	1502.92	1509.67	1509.63	1507.88	1511.86	1519.73	1524.92	1525.36	1523.95	1519.95	1509.88	1488.95	1481.65	1480.03	1481.15	1485.35	1488.05	1487.74	1487.42	1488.59	1489.9	1488.57	1491.03	1493.37
8	1489.99	1501.92	1506.3	1506.72	1506.66	1512.3	1522.41	1529.12	1529.64	1529.38	1527.91	1518.08	1494.13	1485.25	1481.38	1481.4	1481.56	1483.58	1481.78	1480.46	1484.49	1486.53	1484.74	1486.77	1489.99
9	1486.18	1499.9	1504.2	1504.62	1507.52	1514.53	1526.92	1535.67	1536.63	1537.84	1538.27	1528.75	1502.7	1491.89	1485.22	1482.55	1478.36	1479.7	1476.79	1474.19	1479.28	1482.03	1480.79	1481.53	1486.18
10	1483.22	1499.22	1502.62	1505.74	1509.97	1518.38	1533.92	1543.95	1546.46	1550.06	1551.23	1542.12	1514.59	1500.57	1492.23	1485.22	1476.64	1477.48	1471.59	1467.4	1473.21	1477.29	1477.05	1477.06	1483.22
11	1482.28	1500.51	1502.81	1508.16	1513.78	1525.37	1543.95	1555.31	1559.26	1564.8	1565.67	1557.4	1529.25	1513.69	1501.11	1489.29	1477.59	1476.64	1468.27	1461.22	1467.52	1472.72	1474.81	1474.11	1482.28
12	1480.73	1502.97	1505.01	1512.01	1521.04	1536.35	1556.24	1568.53	1573.65	1582.52	1582.75	1573.87	1544.95	1527.92	1512.64	1494.77	1481.48	1478.08	1465.78	1456.76	1463.26	1469.61	1473.9	1470.96	1480.73
13	1478.29	1504.35	1510.29	1517.97	1531.29	1549.43	1570.05	1584.05	1592.33	1601.43	1600.67	1591.96	1563.36	1543.96	1525.97	1503.16	1487.33	1481.18	1464.89	1455.42	1460.82	1468.73	1473.7	1466.81	1478.29
14	1474.7	1504.38	1516.57	1527.26	1543.02	1563.15	1584.6	1600.27	1611.1	1622.27	1619.44	1611.01	1583.18	1561.45	1539.77	1514.96	1495.62	1484.09	1464.22	1455.19	1461.14	1469.23	1474.13	1462.31	1474.7
15	1471.22	1504.61	1523.85	1539.34	1556.07	1578.76	1599.69	1615.83	1630.91	1642.05	1640.12	1630.54	1603.5	1580.37	1554.42	1527.66	1503.9	1487.73	1465.94	1455.67	1464.76	1471.71	1473.47	1458.35	1471.22
16	1469.64	1505.95	1531.92	1553.57	1570.28	1596.02	1616.86	1634.35	1651.48	1663.37	1661.22	1651.08	1624.37	1599.41	1570.58	1542.71	1512.78	1493.5	1471.07	1459.88	1468.76	1475.75	1473.03	1456.79	1469.64
17	1470.51	1509.02	1541	1567.87	1584.31	1612.45	1633.74	1651.94	1671.41	1684.86	1683.29	1671.5	1644.68	1618.23	1586.86	1557.48	1522.95	1500.21	1477.61	1466.96	1473.78	1480.85	1473.49	1457.96	1470.51
18	1474.15	1514.48	1551	1582.32	1599.96	1631.23	1652.53	1672.24	1694.2	1707.06	1706.32	1692.79	1666.78	1638.33	1603.97	1571.66	1535.26	1507.08	1485.21	1475.86	1481.39	1487.95	1475.09	1461.43	1474.15
19	1480.24	1521.84	1561.04	1595.21	1616.7	1647.9	1670.58	1693.24	1716.13	1729.64	1729.33	1714.79	1687.67	1658.21	1620.99	1585.51	1546.4	1515.05	1493.83	1483.86	1491.87	1494.67	1478.04	1466.75	1480.24
20	1488.92	1530.99	1571.7	1608.18	1633.94	1664.94	1688.14	1713.11	1738.86	1752.99	1755.54	1736.14	1708.03	1678.61	1639.98	1600.36	1557.39	1524.2	1504.42	1493.53	1502.67	1501.56	1482.76	1474.59	1488.92
21	1498.52	1541.41	1583.1	1622.43	1651.28	1683.16	1709.16	1735.98	1764.73	1778.94	1782.48	1758.36	1726.86	1697.83	1660.84	1615.94	1569.43	1535.61	1517.4	1504.56	1513.6	1508.73	1490.07	1483.3	1498.52
22	1509.56	1553.34	1595.6	1637.19	1668.67	1701.42	1730.49	1759.26	1787.25	1804.1	1808.29	1781.31	1746.07	1717.77	1682.35	1632.16	1583.12	1548.56	1531.01	1517.71	1524.71	1517.58	1498.87	1492.68	1509.56
23	1520.66	1565.5	1609.6	1653.43	1688.02	1723.83	1755.42	1786.55	1814.14	1832.1	1836.27	1804.98	1766.91	1736.85	1704.83	1649	1599.22	1563.13	1547.06	1533.3	1537.75	1528.84	1509.92	1502.03	1520.66
24	1532.55	1577.82	1623.88	1669.6	1710.38	1746.18	1784.11	1816.41	1840.14	1859.53	1861.5	1831.09	1790.45	1756.49	1725.27	1666.29	1614.99	1578.75	1562.66	1550.49	1553.73	1541.46	1521.78	1512.47	1532.55
25	1548.02	1593.47	1640.33	1685.3	1733.04	1773.06	1813.67	1844.62	1866.97	1888.05	1888.59	1859.12	1817.52	1780.28	1746.49	1684.84	1633.95	1593.51	1578.15	1568.66	1570.48	1555.85	1535.1	1526.73	1548.02
26	1564.18	1611.92	1655.53	1702.94	1759.42	1805.83	1848.18	1878.54	1899.49	1915.69	1916.87	1891.47	1846.81	1804.93	1767.62	1704.8	1652.42	1611.39	1597.93	1587.63	1591.62	1571.25	1550.44	1542.05	1564.18
27	1581.04	1631.61	1670.11	1721.05	1786.78	1837.95	1883.36	1912.34	1928.24	1942.85	1945.37	1925.88	1880.12	1833.29	1789.34	1725.8	1670.55	1632.32	1619.35	1607.97	1613.21	1587.93	1568.22	1557.96	1581.04
28	1600.47	1653.5	1689.51	1743.97	1818.6	1876.21	1922.25	1948.24	1961.84	1968.19	1976.79	1962.98	1915.18	1862.51	1814.11	1747.99	1692.06	1654.96	1644.23	1632.72	1633.46	1605.55	1588.38	1575.3	1600.47
29	1622.61	1675.73	1710.5	1769.13	1852.31	1915.06	1963.93	1988.29	1995.95	1995	2008.94	2002.07	1952.81	1896.11	1839.62	1769.9	1715.25	1680.56	1671.4	1658	1653.63	1623.13	1608.67	1595.13	1622.61
30	1648.53	1700.51	1734.28	1794.99	1886.35	1954	2003.97	2026.12	2029.86	2023.97	2044.39	2042.9	1991.43	1932.86	1865.06	1792.51	1739.98	1708.52	1700.42	1686.47	1674.33	1642.62	1629.43	1617.14	1648.53
31	1677.88	1727.99	1757.63	1823.76	1922.99	1999.2	2052.53	2071.93	2069.26	2057.32	2081.23	2086.75	2032.44	1970.91	1892.4	1812.79	1765.6	1737.8	1732.64	1717.63	1698.12	1662.44	1650.88	1642.37	1677.88
32	1708.96	1758.01	1781.21	1848.74	1959.51	2044	2099.65	2115.84	2103.88	2090.71	2119.61	2132.54	2076.75	2011.47	1921.55	1834.89	1793.33	1770.29	1765.37	1747.63	1721.49	1686.03	1675.12	1670.08	1708.96
33	1742.39	1793.11	1807.03	1877.49	1998.92	2096.06	2152.49	2163.95	2145.29	2127.33	2161.87	2182.63	2122.73	2055	1953.97	1857.68	1823.62	1805.24	1802.95	1783.23	1746.28	1710.64	1700.15	1698.39	1742.39
34	1777.66	1829.44	1834.38	1909.3	2040.25	2150.11	2210.98	2216.73	2186.32	2166.99	2204.89	2232.53	2170.85	2100.87	1987.49	1883.12	1852.3	1841.5	1840.62	1818.24	1772.67	1730.17	1726.88	1727.12	1777.66
35	1818.03	1868.6	1864.27	1942.46	2083.7	2202.86	2263.96	2267.98	2224.69	2207.92	2250.78	2285.69	2221.74	2150.36	2022.64	1910.47	1884.51	1879.64	1879.91	1853.8	1798.86	1751.88	1756.25	1758.76	1818.03
36	1864.08	1909.1	1897.46	1980.06	2133.16	2265.46	2328.98	2328.27	2272.01	2254.26	2299.8	2342.41	2275.87	2200.45	2060.28	1940.81	1917.39	1919.31	1923.46	1893.66	1827.99	1775.69	1787.56	1797.96	1864.08
37	1916.82	1953.03	1933.19	2016.92	2183.52	2324.49	2391.46	2388.91	2315.85	2301.97	2349.91	2401.75	2332.69	2253.16	2098.5	1972.45	1951.1	1961.4	1964.4	1932.74	1856.56	1801.7	1822.01	1845.12	1916.82
38	1974.92	1998.83	1971.13	2058.32	2236.64	2391.03	2456.84	2450.41	2369.08	2353.07	2405.87	2465.16	2392.69	2310.07											

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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.	ALEDM5T	Sample ID.	M1
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
120.03	60	0.774	92.8	0.998	5.54%
277.98	60	0.362	91.1	0.905	11.81%



## 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\*\*\*\*\*