

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P130257

Luminaire Tested: **HL612ICAT - HLM6940 - HL6WFL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130257
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33490)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6940 - HL6WFL - 456P
Description: HALO ALLSLOPE 6" 21W, Black Coilex Baffle, White Metal Trim Ring using 55 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1610.5 lumens
Efficiency: N/A
Efficacy: 84.3 lumens/watt
Spacing Criteria (0/90/45): 1.36 / 0.77 / 1.12
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

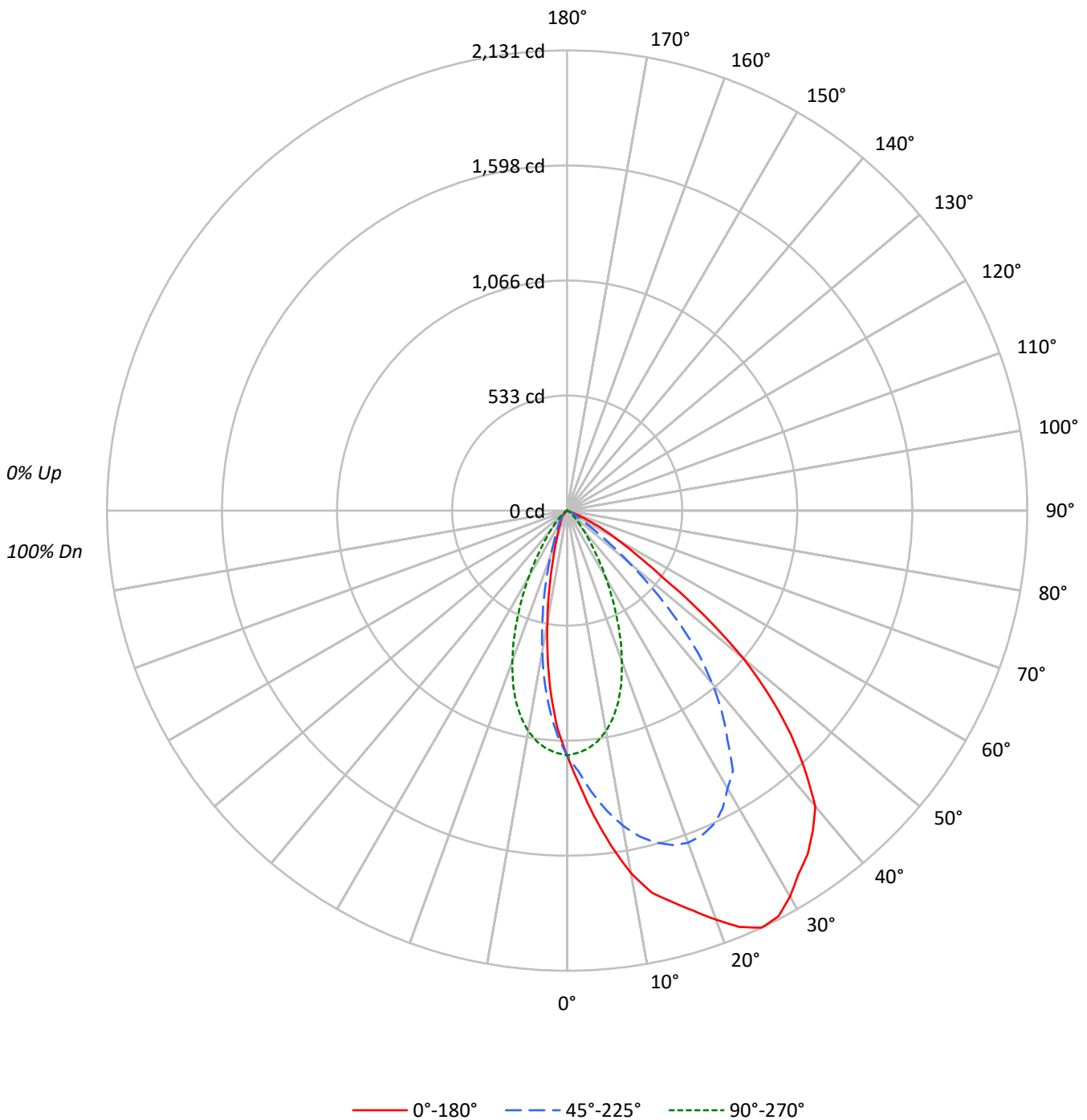
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60					60			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55					55			
7	76	65	58	53	74	64	57	53	63	57	52	61	56	52	60	55	52	50					50			
8	71	60	53	48	70	60	53	48	58	52	48	57	52	48	56	51	47	46					46			
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42					42			
10	63	52	45	41	62	52	45	41	51	45	41	50	44	41	49	44	40	39					39			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	67659	67659	67659
5°	82988	64794	50084
10°	98735	60053	30443
15°	108242	52826	15789
20°	116761	42919	8398
25°	124883	31709	5116
30°	123315	21250	3603
35°	119318	12668	2875
40°	113871	7397	2122
45°	97639	4382	1200
50°	75056	2729	571
55°	40956	1697	136
60°	21935	883	147
65°	9798	324	162
70°	1543	182	91
75°	104	208	104
80°	0	247	0
85°	0	305	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.9	6.6
10°-20°	281.7	17.5
20°-30°	386.6	24.0
30°-40°	403.0	25.0
40°-50°	297.5	18.5
50°-60°	111.5	6.9
60°-70°	21.8	1.4
70°-80°	1.7	0.1
80°-90°	0.8	0.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	774.2	48.1
0°-40°	1177.2	73.1
0°-60°	1586.2	98.5
0°-90°	1610.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1610.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1134	1134	1134	1134	1134	
5°	1417	1309	1106	926	855	144
15°	1876	1592	916	411	274	535
25°	2131	1604	541	128	87	970
35°	1942	1294	206	60	47	1211
45°	1464	726	66	28	18	1114
55°	543	129	22	5	2	530
65°	109	20	4	2	2	120
75°	1	1	2	1	1	3
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5
2.5°	1266.8	1247.0	1238.9	1254.2	1254.2	1257.8	1250.6	1236.2	1241.6	1209.2	1221.8
5°	1417.2	1400.9	1400.9	1400.0	1391.9	1394.6	1382.0	1355.0	1348.7	1309.1	1311.8
7.5°	1565.7	1548.6	1546.8	1547.7	1526.1	1527.0	1506.3	1466.7	1453.2	1400.0	1390.1
10°	1705.3	1685.5	1684.6	1675.6	1656.6	1647.6	1617.9	1568.4	1549.5	1480.2	1454.1
12.5°	1812.4	1797.1	1785.4	1789.9	1760.2	1753.0	1710.7	1655.7	1625.1	1545.0	1506.3
15°	1876.3	1855.6	1860.1	1854.7	1843.0	1834.0	1793.5	1726.0	1684.6	1591.8	1542.3
17.5°	1943.0	1924.1	1912.3	1904.2	1884.4	1879.9	1848.4	1777.3	1726.9	1624.2	1562.1
20°	2015.9	1995.2	1983.5	1956.5	1927.7	1912.3	1879.9	1810.6	1750.3	1636.8	1560.3
22.5°	2087.0	2058.2	2034.8	1996.1	1959.2	1934.9	1898.8	1825.9	1753.0	1628.7	1540.5
25°	2131.1	2100.5	2060.9	2014.1	1972.7	1945.7	1908.7	1824.1	1741.3	1604.4	1501.8
27.5°	2118.5	2087.9	2051.9	2005.1	1968.2	1943.9	1898.8	1840.3	1708.0	1557.6	1440.6
30°	2063.6	2039.3	2012.3	1975.4	1944.8	1931.3	1862.8	1753.0	1643.1	1485.6	1337.0
32.5°	1994.3	1978.1	1961.9	1934.9	1914.2	1894.3	1801.6	1681.9	1557.6	1428.9	1269.5
35°	1942.1	1908.7	1905.1	1892.5	1866.4	1811.5	1714.3	1591.8	1458.6	1293.8	1165.1
37.5°	1869.1	1853.8	1846.6	1826.8	1771.9	1710.7	1602.6	1470.3	1343.3	1178.6	1043.5
40°	1787.2	1768.3	1752.1	1713.4	1652.1	1584.6	1464.0	1331.6	1205.6	1045.3	910.3
42.5°	1629.6	1622.4	1588.2	1558.5	1499.1	1424.4	1305.5	1175.0	1048.0	902.2	753.6
45°	1464.0	1448.7	1414.5	1386.5	1317.2	1246.1	1138.9	1006.6	875.1	725.7	582.5
47.5°	1274.9	1265.9	1245.2	1200.2	1129.9	1057.9	942.7	812.1	679.8	541.1	428.6
50°	1064.2	1057.9	1030.0	985.0	916.6	846.3	724.8	602.3	484.4	372.7	283.6
52.5°	807.6	787.8	768.0	720.3	663.6	595.1	489.8	394.4	310.6	233.2	163.9
55°	542.9	528.5	505.1	478.1	434.0	376.3	303.4	244.9	191.8	128.8	90.0
57.5°	377.2	365.5	350.2	322.3	288.1	250.3	206.2	156.7	116.1	76.5	56.7
60°	268.3	264.7	253.9	232.3	204.4	172.0	129.7	95.4	66.6	47.7	38.7
62.5°	187.3	182.8	171.1	153.1	127.9	99.9	72.9	51.3	39.6	31.5	26.1
65°	108.9	104.4	96.3	81.9	64.8	49.5	37.8	28.8	24.3	19.8	17.1
67.5°	50.4	45.9	43.2	35.1	29.7	25.2	19.8	15.3	13.5	10.8	9.0
70°	15.3	14.4	14.4	12.6	11.7	9.9	8.1	6.3	6.3	5.4	4.5
72.5°	3.6	3.6	3.6	3.6	3.6	3.6	2.7	2.7	2.7	1.8	1.8
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5
2.5°	1191.2	1202.9	1188.5	1169.6	1171.4	1152.5	1137.1	1123.6	1120.0	1103.8	1094.8
5°	1281.2	1263.2	1237.1	1205.6	1192.1	1160.6	1133.5	1106.5	1090.3	1062.4	1042.6
7.5°	1347.8	1316.3	1274.0	1228.1	1201.1	1157.9	1118.2	1077.7	1050.7	1010.2	980.5
10°	1399.1	1353.2	1297.4	1237.1	1197.5	1141.6	1104.7	1037.2	996.7	944.5	904.0
12.5°	1437.0	1376.6	1306.4	1233.5	1181.3	1112.8	1048.9	982.3	931.0	869.7	811.2
15°	1458.6	1384.7	1299.2	1213.7	1147.0	1071.4	993.1	915.7	849.0	776.1	713.1
17.5°	1463.1	1373.0	1274.0	1180.4	1102.9	1013.8	937.3	834.6	754.5	674.4	600.5
20°	1448.7	1356.8	1237.1	1134.4	1045.3	943.6	858.9	741.0	654.6	570.8	500.6
22.5°	1417.2	1301.9	1187.6	1074.1	969.7	855.3	745.5	644.7	555.5	470.9	400.7
25°	1362.2	1244.3	1120.9	998.5	885.9	757.2	642.0	541.1	453.8	377.2	308.8
27.5°	1296.5	1168.7	1039.9	933.7	779.7	655.5	540.2	445.7	362.8	287.2	234.1
30°	1215.5	1084.9	947.2	798.6	668.1	552.8	448.4	355.6	280.9	222.4	179.2
32.5°	1120.9	976.9	836.4	689.7	564.5	457.4	355.6	275.5	212.5	170.2	142.3
35°	1012.0	863.4	714.9	577.1	463.7	358.3	273.7	206.2	165.7	136.0	115.2
37.5°	891.3	736.5	591.5	468.2	365.5	273.7	200.8	155.8	126.0	104.4	88.2
40°	750.0	603.2	475.4	361.0	261.1	191.8	145.0	116.1	96.3	82.8	72.0
42.5°	595.1	469.1	357.4	254.8	177.4	135.1	107.1	88.2	75.6	64.8	57.6
45°	446.6	338.5	243.1	171.1	125.1	97.2	78.3	65.7	56.7	49.5	45.0
47.5°	318.7	224.2	153.1	107.1	82.8	65.7	55.8	47.7	42.3	39.6	36.0
50°	199.0	134.2	89.1	67.5	55.8	46.8	42.3	38.7	34.2	30.6	27.9
52.5°	106.2	73.8	55.8	47.7	42.3	37.8	33.3	29.7	26.1	24.3	20.7
55°	61.2	51.3	42.3	37.8	33.3	28.8	25.2	22.5	20.7	18.0	15.3
57.5°	45.0	38.7	32.4	27.9	25.2	21.6	18.9	17.1	14.4	11.7	9.9
60°	31.5	27.0	24.3	21.6	18.0	15.3	13.5	10.8	9.0	7.2	6.3
62.5°	22.5	18.9	16.2	13.5	11.7	9.9	8.1	6.3	5.4	4.5	3.6
65°	13.5	11.7	9.9	8.1	7.2	5.4	4.5	3.6	2.7	2.7	1.8
67.5°	7.2	6.3	5.4	4.5	3.6	2.7	1.8	1.8	1.8	1.8	1.8
70°	3.6	2.7	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
75°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8
77.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	1.8	1.8	0.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5	1133.5
2.5°	1091.2	1078.6	1075.9	1064.2	1066.0	1039.0	1035.4	1023.7	1026.4	1024.6	1025.5
5°	1009.3	1006.6	988.6	967.9	958.9	925.6	913.9	897.7	889.5	881.4	879.6
7.5°	949.9	920.2	886.8	859.8	840.9	799.5	774.3	751.8	740.1	729.3	721.2
10°	860.7	819.3	776.1	743.7	721.2	663.6	634.7	602.3	588.8	568.1	560.9
12.5°	759.9	707.7	662.7	615.8	570.8	530.3	505.1	478.1	452.0	435.8	419.6
15°	646.5	590.6	541.1	494.3	458.3	410.6	382.7	352.0	327.7	309.7	294.4
17.5°	537.5	479.0	432.2	387.2	340.3	305.2	275.5	246.7	232.3	216.1	208.0
20°	433.1	378.1	324.1	277.3	249.4	219.7	193.6	177.4	169.3	159.4	154.0
22.5°	340.3	284.5	243.1	205.3	181.0	162.1	150.4	137.8	131.5	124.2	119.7
25°	255.7	211.6	180.1	160.3	145.0	127.9	117.9	108.0	101.7	97.2	93.6
27.5°	192.7	163.9	141.4	126.0	114.3	101.7	93.6	86.4	81.9	78.3	74.7
30°	153.1	131.5	113.4	102.6	92.7	82.8	76.5	70.2	67.5	65.7	63.9
32.5°	122.4	106.2	91.8	83.7	75.6	68.4	64.8	61.2	59.4	57.6	56.7
35°	98.1	85.5	74.7	68.4	64.8	60.3	56.7	54.0	52.2	51.3	49.5
37.5°	78.3	69.3	63.9	59.4	56.7	52.2	49.5	46.8	45.0	44.1	43.2
40°	63.9	58.5	54.0	50.4	46.8	44.1	40.5	38.7	37.8	36.0	35.1
42.5°	51.3	46.8	43.2	40.5	38.7	36.0	33.3	31.5	29.7	28.8	27.0
45°	41.4	37.8	34.2	32.4	30.6	27.9	25.2	22.5	22.5	20.7	19.8
47.5°	33.3	29.7	27.0	25.2	22.5	20.7	18.9	17.1	16.2	15.3	14.4
50°	24.3	22.5	19.8	18.9	17.1	14.4	13.5	11.7	10.8	9.9	9.0
52.5°	18.9	17.1	14.4	12.6	11.7	9.9	9.0	7.2	6.3	5.4	5.4
55°	13.5	11.7	9.9	8.1	7.2	5.4	4.5	3.6	3.6	2.7	2.7
57.5°	9.0	7.2	6.3	4.5	3.6	3.6	2.7	1.8	1.8	1.8	0.9
60°	5.4	4.5	3.6	2.7	1.8	1.8	1.8	1.8	0.9	0.9	1.8
62.5°	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9	1.8	0.9
70°	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	1.8	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P130257

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6WFL - 456P

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1133.5	1133.5	1133.5	1133.5
2.5°	998.5	994.9	1006.6	1010.2
5°	872.4	845.4	857.1	855.3
7.5°	694.2	678.0	692.4	688.8
10°	533.9	518.6	528.5	525.8
12.5°	398.0	386.3	387.2	385.4
15°	279.1	272.8	269.2	273.7
17.5°	193.6	189.1	188.2	191.8
20°	145.9	141.4	141.4	145.0
22.5°	114.3	109.8	109.8	110.7
25°	88.2	87.3	85.5	87.3
27.5°	72.0	69.3	70.2	69.3
30°	61.2	59.4	60.3	60.3
32.5°	54.0	53.1	53.1	53.1
35°	47.7	46.8	46.8	46.8
37.5°	41.4	40.5	40.5	40.5
40°	33.3	32.4	32.4	33.3
42.5°	25.2	25.2	25.2	25.2
45°	18.9	18.0	18.0	18.0
47.5°	13.5	12.6	12.6	12.6
50°	8.1	7.2	7.2	8.1
52.5°	4.5	3.6	3.6	4.5
55°	1.8	1.8	1.8	1.8
57.5°	0.9	0.9	0.9	0.9
60°	0.9	0.9	0.9	1.8
62.5°	0.9	0.9	1.8	1.8
65°	0.9	0.9	1.8	1.8
67.5°	1.8	0.9	0.9	0.9
70°	0.9	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.9
80°	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)