

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: P130160

Luminaire Tested: **HL612ICAT - HLM6940 - HL6FL - 455SC**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130160
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33449)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6940 - HL6FL - 455SC
Description: HALO ALLSLOPE 6" 21W, Specular Clear Reflector, White Metal Trim Ring using 40 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: 1785.8 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.45 / 0.65 / 1
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

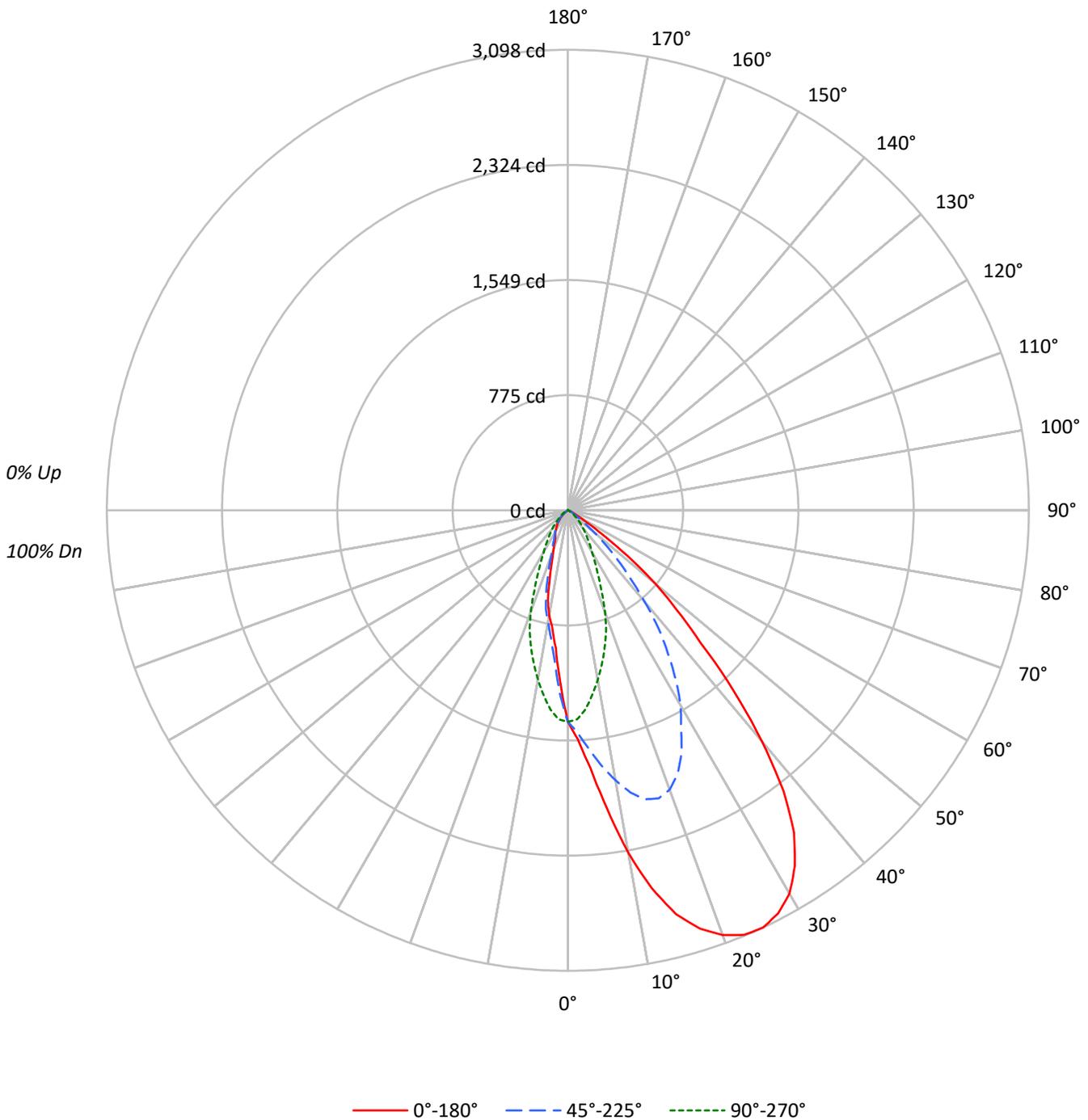
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	113	110	107	104	110	108	105	103	103	101	100	100	98	97	96	95	94	92				92
2	106	101	96	92	104	99	95	91	96	92	89	93	90	87	90	88	86	84				84
3	100	93	87	83	98	91	86	82	89	84	81	86	82	79	84	81	78	76				76
4	94	85	79	74	92	84	78	74	82	77	73	80	76	72	78	74	71	70				70
5	88	79	72	67	87	78	72	67	76	71	66	74	69	66	73	68	65	64				64
6	83	73	66	61	81	72	66	61	71	65	61	69	64	60	68	63	60	58				58
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55	53				53
8	74	63	56	52	72	62	56	52	61	55	51	60	55	51	59	54	51	49				49
9	70	59	52	48	68	58	52	48	57	51	47	56	51	47	55	51	47	46				46
10	66	55	49	44	65	55	48	44	54	48	44	53	48	44	52	47	44	42				42

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	84892	84892	84892
5°	101849	78777	54505
10°	135593	66937	41548
15°	162273	55087	26900
20°	176082	42368	16270
25°	181573	28087	11521
30°	177957	19337	10027
35°	162737	14014	7919
40°	129130	10334	5849
45°	84281	7236	4082
50°	54074	4577	2158
55°	20776	3078	279
60°	6369	1897	0
65°	3590	837	0
70°	1685	192	0
75°	220	220	0
80°	0	261	0
85°	0	322	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.2	7.1
10°-20°	362.7	20.3
20°-30°	486.9	27.3
30°-40°	455.6	25.5
40°-50°	262.6	14.7
50°-60°	74.1	4.1
60°-70°	14.1	0.8
70°-80°	1.7	0.1
80°-90°	0.8	0.0
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°	976.9	54.7
0°-40°	1432.5	80.2
0°-60°	1769.2	99.1
0°-90°	1785.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1785.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1422	1422	1422	1422	1422	
5°	1739	1611	1345	1012	931	185
15°	2813	2013	955	557	466	794
25°	3098	1808	479	221	197	1417
35°	2649	1170	228	140	129	1617
45°	1264	478	108	69	61	1014
55°	275	77	41	20	4	293
65°	40	25	9	1	0	42
75°	2	1	2	1	0	5
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°	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2
2.5°	1540.9	1543.7	1551.1	1535.3	1520.5	1515.9	1520.5	1495.5	1502.9	1495.5	1477.9
5°	1739.3	1751.4	1752.3	1730.0	1707.8	1697.6	1689.2	1639.2	1638.2	1611.4	1571.5
7.5°	2024.9	2029.5	2011.0	1979.4	1936.8	1902.5	1871.9	1801.4	1781.0	1731.9	1673.5
10°	2341.9	2354.0	2330.8	2285.4	2214.9	2163.9	2086.1	1982.2	1923.8	1844.1	1760.6
12.5°	2602.5	2611.7	2598.8	2536.6	2467.1	2409.6	2302.1	2166.7	2067.5	1945.1	1820.0
15°	2812.9	2817.6	2805.5	2737.8	2660.0	2582.1	2469.9	2311.3	2185.3	2012.8	1848.7
17.5°	2951.1	2955.7	2952.0	2873.2	2791.6	2710.0	2578.4	2402.2	2236.2	2031.4	1837.6
20°	3040.1	3054.9	3037.3	2965.0	2868.6	2781.4	2630.3	2430.0	2238.1	1999.8	1782.9
22.5°	3092.0	3105.0	3083.7	3006.7	2901.9	2805.5	2633.1	2406.8	2184.3	1922.9	1698.5
25°	3098.5	3112.4	3087.4	3001.1	2890.8	2774.9	2576.5	2325.3	2070.3	1807.9	1592.8
27.5°	3057.7	3071.6	3041.0	2952.9	2834.3	2696.1	2461.5	2186.2	1921.0	1644.7	1455.6
30°	2978.0	2978.9	2948.3	2857.4	2718.4	2557.0	2287.2	1990.6	1757.8	1515.9	1304.5
32.5°	2838.0	2850.0	2805.5	2700.7	2482.9	2344.7	2061.0	1787.5	1575.2	1347.1	1168.2
35°	2648.8	2653.5	2596.9	2477.3	2269.6	2070.3	1806.1	1578.0	1386.1	1170.0	985.5
37.5°	2379.0	2382.7	2309.5	2180.6	1960.9	1788.4	1561.3	1363.8	1184.9	997.6	826.1
40°	2026.7	2026.7	1944.2	1825.5	1647.5	1511.2	1322.1	1140.4	977.2	802.0	659.2
42.5°	1654.0	1638.2	1585.4	1477.9	1337.9	1198.8	1032.8	886.3	759.3	623.0	506.2
45°	1263.7	1257.2	1223.8	1143.2	1042.1	946.6	813.1	703.7	595.2	478.4	377.3
47.5°	991.1	991.1	966.1	901.2	823.3	744.5	642.5	541.4	449.7	345.8	273.5
50°	766.7	771.4	733.4	679.6	611.0	552.6	455.2	369.0	292.0	227.1	181.7
52.5°	504.4	510.9	478.4	438.5	382.0	335.6	254.0	199.3	158.5	130.7	108.5
55°	275.4	271.7	252.2	223.4	180.8	152.1	120.5	101.1	88.1	77.0	69.5
57.5°	131.7	129.8	116.8	102.9	91.8	82.5	73.2	66.8	62.1	58.4	54.7
60°	77.9	76.0	74.2	68.6	64.9	60.3	55.6	51.9	49.1	45.4	42.6
62.5°	54.7	54.7	53.8	51.9	48.2	45.4	41.7	38.9	37.1	34.3	32.4
65°	39.9	38.9	38.9	37.1	35.2	33.4	30.6	28.7	27.8	25.0	23.2
67.5°	26.9	26.9	26.9	26.0	24.1	22.3	20.4	19.5	17.6	15.8	14.8
70°	16.7	16.7	15.8	14.8	13.9	13.0	11.1	11.1	10.2	8.3	7.4
72.5°	7.4	7.4	7.4	6.5	6.5	5.6	4.6	4.6	3.7	2.8	2.8
75°	1.9	1.9	1.9	1.9	1.9	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°	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2
2.5°	1503.8	1475.1	1467.7	1477.9	1463.0	1433.4	1426.9	1408.3	1385.1	1374.0	1361.0
5°	1579.8	1540.0	1516.8	1511.2	1476.9	1425.0	1392.6	1345.3	1299.8	1264.6	1223.8
7.5°	1662.4	1597.5	1551.1	1516.8	1452.8	1373.1	1314.7	1252.6	1187.7	1139.4	1091.2
10°	1724.5	1628.0	1549.2	1485.3	1399.0	1296.1	1229.4	1156.1	1082.0	1023.6	973.5
12.5°	1752.3	1624.3	1521.4	1437.1	1332.3	1223.8	1137.6	1056.0	977.2	922.5	869.7
15°	1750.4	1596.5	1472.3	1373.1	1254.4	1133.9	1038.4	954.9	878.9	827.9	778.8
17.5°	1711.5	1538.1	1395.3	1284.1	1156.1	1030.0	940.1	853.0	777.9	715.7	652.7
20°	1644.7	1458.4	1300.8	1172.8	1044.0	917.9	821.4	731.5	641.6	578.5	513.6
22.5°	1550.2	1354.5	1186.7	1051.4	918.8	793.6	687.0	591.5	509.0	453.4	409.8
25°	1429.6	1230.3	1059.7	920.6	788.1	664.8	558.1	479.3	407.9	365.3	331.9
27.5°	1287.8	1088.5	929.9	795.5	662.0	546.1	454.3	390.3	337.5	304.1	278.1
30°	1138.5	951.2	795.5	674.0	546.1	439.5	369.9	323.6	285.6	255.9	237.3
32.5°	980.0	811.2	677.7	554.4	442.2	360.7	310.6	275.4	239.2	220.7	204.9
35°	831.6	675.9	548.9	441.3	359.7	302.2	260.5	228.1	206.8	189.1	177.1
37.5°	691.6	545.2	425.6	347.7	290.2	244.8	215.1	192.8	175.2	162.2	153.9
40°	536.8	416.3	332.8	280.9	237.3	200.3	178.9	162.2	149.3	140.0	132.6
42.5°	406.1	318.0	265.2	225.3	192.8	166.0	152.1	135.4	125.2	117.7	110.3
45°	306.0	247.5	208.6	180.8	154.8	133.5	121.5	108.5	99.2	94.6	89.0
47.5°	228.1	186.4	155.8	136.3	115.0	100.1	91.8	83.4	77.9	74.2	71.4
50°	153.9	125.2	106.6	92.7	82.5	75.1	70.5	64.9	62.1	60.3	56.6
52.5°	94.6	80.7	72.3	67.7	63.0	59.3	56.6	52.8	48.2	46.4	43.6
55°	64.9	60.3	57.5	53.8	50.1	46.4	43.6	40.8	38.9	37.1	34.3
57.5°	52.8	48.2	44.5	41.7	38.9	36.2	34.3	32.4	29.7	27.8	26.0
60°	39.9	37.1	34.3	32.4	29.7	27.8	26.0	23.2	21.3	19.5	17.6
62.5°	30.6	27.8	26.0	24.1	22.3	19.5	17.6	15.8	13.9	12.1	10.2
65°	21.3	19.5	17.6	15.8	13.9	12.1	11.1	9.3	7.4	5.6	3.7
67.5°	13.9	12.1	10.2	8.3	7.4	5.6	4.6	3.7	1.9	1.9	0.9
70°	6.5	5.6	3.7	3.7	2.8	1.9	1.9	1.9	0.9	0.9	0.9
72.5°	1.9	1.9	1.9	1.9	1.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9	1.9	1.9	0.9	1.9	1.9	0.9	0.9
77.5°	0.9	0.9	0.9	1.9	1.9	1.9	1.9	1.9	0.9	0.9	1.9
80°	0.9	0.9	0.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	0.9
82.5°	0.9	0.9	0.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	0.9	0.9	0.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	0.9	0.9	0.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2	1422.2
2.5°	1324.9	1322.1	1296.1	1273.9	1258.1	1232.2	1220.1	1207.1	1176.5	1177.5	1190.4
5°	1172.8	1148.7	1112.6	1075.5	1049.5	1012.4	994.8	976.3	962.4	947.5	946.6
7.5°	1031.0	998.5	960.5	924.4	902.1	865.9	850.2	831.6	818.7	809.4	810.3
10°	910.4	879.9	843.7	826.1	794.6	764.9	753.8	740.8	732.4	725.9	731.5
12.5°	818.7	788.1	757.5	726.9	707.4	681.4	667.5	655.5	644.4	638.8	636.9
15°	721.3	687.0	650.8	613.8	595.2	557.2	542.4	523.8	509.0	496.0	482.1
17.5°	593.4	557.2	521.0	481.2	453.4	429.3	411.6	392.2	376.4	365.3	359.7
20°	466.3	431.1	403.3	368.1	348.6	328.2	317.1	302.2	293.9	289.3	287.4
22.5°	368.1	338.4	317.1	293.9	280.0	266.1	258.7	248.5	241.1	235.5	235.5
25°	299.5	279.1	261.5	245.7	236.4	220.7	215.1	208.6	204.0	200.3	202.1
27.5°	250.3	242.9	224.4	208.6	201.2	191.0	188.2	183.6	181.7	179.9	180.8
30°	216.0	203.0	194.7	183.6	178.0	170.6	170.6	167.8	166.9	166.9	168.7
32.5°	188.2	178.0	170.6	163.2	161.3	155.8	156.7	153.9	152.1	151.1	151.1
35°	164.1	156.7	152.1	147.4	145.6	140.0	139.1	136.3	133.5	130.7	131.7
37.5°	143.7	139.1	134.4	129.8	127.0	121.5	120.5	118.7	116.8	115.9	115.9
40°	124.2	119.6	115.9	110.3	108.5	102.9	103.8	102.0	98.3	96.4	95.5
42.5°	102.9	99.2	95.5	92.7	90.9	85.3	83.4	78.8	77.9	77.0	77.9
45°	84.4	80.7	77.9	73.2	71.4	68.6	67.7	65.8	64.0	62.1	63.0
47.5°	67.7	64.9	61.2	59.3	57.5	54.7	53.8	51.9	51.0	49.1	49.1
50°	52.8	51.0	49.1	46.4	45.4	42.6	41.7	39.9	38.0	36.2	35.2
52.5°	41.7	40.8	38.9	36.2	34.3	32.4	30.6	26.9	24.1	21.3	21.3
55°	32.4	30.6	28.7	26.0	24.1	20.4	17.6	14.8	12.1	8.3	7.4
57.5°	24.1	21.3	19.5	15.8	13.0	9.3	7.4	3.7	2.8	0.9	0.0
60°	14.8	13.0	9.3	6.5	4.6	1.9	0.9	0.9	0.0	0.0	0.0
62.5°	7.4	5.6	2.8	1.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0
65°	2.8	1.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
82.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	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: P130160

CATALOG NUMBER: HL612ICAT - HLM6940 - HL6FL - 455SC

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1422.2	1422.2	1422.2	1422.2
2.5°	1140.4	1154.3	1130.2	1157.1
5°	915.1	916.9	910.4	930.8
7.5°	784.4	791.8	782.5	797.3
10°	709.3	712.0	707.4	717.6
12.5°	622.1	613.8	610.1	620.3
15°	475.6	472.8	460.8	466.3
17.5°	351.4	347.7	346.7	345.8
20°	279.1	275.4	274.4	280.9
22.5°	228.1	226.2	223.4	229.9
25°	196.6	196.6	194.7	196.6
27.5°	177.1	178.0	177.1	179.9
30°	165.0	166.0	165.0	167.8
32.5°	146.5	147.4	145.6	146.5
35°	127.9	127.9	127.0	128.9
37.5°	113.1	114.0	113.1	115.0
40°	92.7	91.8	90.9	91.8
42.5°	76.0	75.1	75.1	77.0
45°	60.3	60.3	60.3	61.2
47.5°	47.3	46.4	46.4	46.4
50°	33.4	31.5	31.5	30.6
52.5°	17.6	16.7	16.7	15.8
55°	5.6	4.6	4.6	3.7
57.5°	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0
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)