

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: P130255

Luminaire Tested: **HL612ICAT - HLM6930 - HL6WFL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130255
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 - HLM6930 - 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1456.2 lumens
Efficiency: N/A
Efficacy: 76.2 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

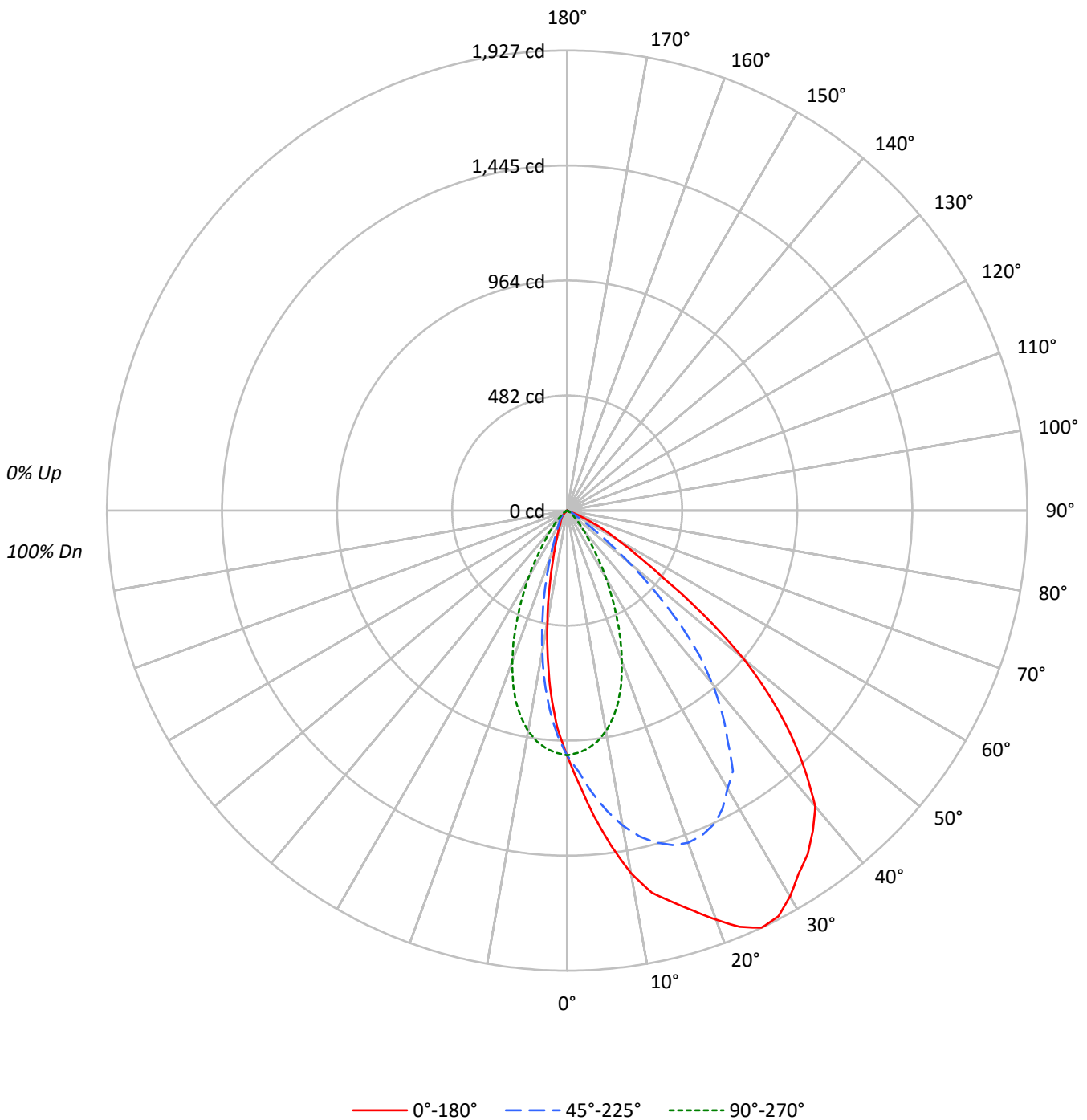
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	61183	61183	61183
5°	75041	58593	45288
10°	89280	54303	27531
15°	97881	47766	14278
20°	105582	38806	7593
25°	112929	28673	4629
30°	111507	19218	3257
35°	107891	11452	2599
40°	102969	6690	1918
45°	88289	3962	1087
50°	67869	2468	515
55°	37033	1539	121
60°	19834	801	131
65°	8862	297	144
70°	1392	161	81
75°	93	185	93
80°	0	219	0
85°	0	271	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	95.8	6.6
10°-20°	254.7	17.5
20°-30°	349.6	24.0
30°-40°	364.4	25.0
40°-50°	269.1	18.5
50°-60°	100.8	6.9
60°-70°	19.7	1.4
70°-80°	1.5	0.1
80°-90°	0.7	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°	700.1	48.1
0°-40°	1064.5	73.1
0°-60°	1434.3	98.5
0°-90°	1456.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1456.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1025	1025	1025	1025	1025	
5°	1282	1184	1001	837	773	130
15°	1697	1439	828	371	248	484
25°	1927	1451	489	116	79	877
35°	1756	1170	186	54	42	1095
45°	1324	656	59	25	16	1008
55°	491	116	20	5	2	479
65°	98	18	3	2	2	108
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°	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0
2.5°	1145.5	1127.6	1120.3	1134.1	1134.1	1137.4	1130.8	1117.8	1122.7	1093.4	1104.8
5°	1281.5	1266.8	1266.8	1266.0	1258.7	1261.1	1249.7	1225.3	1219.6	1183.8	1186.2
7.5°	1415.8	1400.3	1398.7	1399.5	1380.0	1380.8	1362.1	1326.2	1314.0	1266.0	1257.0
10°	1542.0	1524.1	1523.3	1515.1	1498.0	1489.9	1463.0	1418.2	1401.1	1338.5	1314.8
12.5°	1638.9	1625.0	1614.4	1618.5	1591.7	1585.1	1546.9	1497.2	1469.5	1397.1	1362.1
15°	1696.7	1678.0	1682.0	1677.1	1666.6	1658.4	1621.8	1560.7	1523.3	1439.4	1394.6
17.5°	1756.9	1739.8	1729.2	1721.9	1704.0	1699.9	1671.4	1607.1	1561.5	1468.7	1412.5
20°	1822.9	1804.1	1793.6	1769.1	1743.1	1729.2	1699.9	1637.2	1582.7	1480.1	1410.9
22.5°	1887.2	1861.1	1840.0	1805.0	1771.6	1749.6	1717.0	1651.1	1585.1	1472.8	1393.0
25°	1927.1	1899.4	1863.6	1821.2	1783.8	1759.4	1726.0	1649.5	1574.6	1450.8	1358.0
27.5°	1915.7	1888.0	1855.4	1813.1	1779.7	1757.7	1717.0	1664.1	1544.4	1408.5	1302.6
30°	1866.0	1844.0	1819.6	1786.2	1758.6	1746.3	1684.5	1585.1	1485.8	1343.3	1209.0
32.5°	1803.3	1788.7	1774.0	1749.6	1730.9	1713.0	1629.1	1520.8	1408.5	1292.0	1147.9
35°	1756.1	1726.0	1722.7	1711.3	1687.7	1638.1	1550.1	1439.4	1318.9	1169.9	1053.5
37.5°	1690.2	1676.3	1669.8	1651.9	1602.2	1546.9	1449.2	1329.5	1214.7	1065.7	943.6
40°	1616.1	1599.0	1584.3	1549.3	1494.0	1432.9	1323.8	1204.1	1090.1	945.2	823.1
42.5°	1473.6	1467.1	1436.2	1409.3	1355.6	1288.0	1180.5	1062.5	947.7	815.8	681.4
45°	1323.8	1310.0	1279.0	1253.8	1191.1	1126.8	1029.9	910.2	791.3	656.2	526.8
47.5°	1152.8	1144.7	1126.0	1085.3	1021.8	956.6	852.4	734.4	614.7	489.3	387.5
50°	962.3	956.6	931.4	890.7	828.8	765.3	655.4	544.7	438.0	337.1	256.5
52.5°	730.3	712.4	694.5	651.3	600.0	538.1	442.9	356.6	280.9	210.9	148.2
55°	490.9	477.9	456.7	432.3	392.4	340.3	274.4	221.4	173.4	116.4	81.4
57.5°	341.1	330.5	316.7	291.5	260.5	226.3	186.4	141.7	105.0	69.2	51.3
60°	242.6	239.4	229.6	210.0	184.8	155.5	117.2	86.3	60.2	43.1	35.0
62.5°	169.3	165.3	154.7	138.4	115.6	90.4	65.9	46.4	35.8	28.5	23.6
65°	98.5	94.4	87.1	74.1	58.6	44.8	34.2	26.1	22.0	17.9	15.5
67.5°	45.6	41.5	39.1	31.8	26.9	22.8	17.9	13.8	12.2	9.8	8.1
70°	13.8	13.0	13.0	11.4	10.6	9.0	7.3	5.7	5.7	4.9	4.1
72.5°	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4	1.6	1.6
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
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°	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0
2.5°	1077.1	1087.7	1074.7	1057.6	1059.2	1042.1	1028.3	1016.1	1012.8	998.1	990.0
5°	1158.5	1142.2	1118.6	1090.1	1077.9	1049.4	1025.0	1000.6	985.9	960.7	942.8
7.5°	1218.8	1190.3	1152.0	1110.5	1086.1	1047.0	1011.2	974.5	950.1	913.5	886.6
10°	1265.2	1223.7	1173.2	1118.6	1082.8	1032.3	999.0	937.9	901.3	854.0	817.4
12.5°	1299.4	1244.8	1181.3	1115.4	1068.2	1006.3	948.5	888.2	841.8	786.5	733.5
15°	1318.9	1252.2	1174.8	1097.5	1037.2	968.8	898.0	828.0	767.7	701.8	644.8
17.5°	1323.0	1241.6	1152.0	1067.3	997.3	916.7	847.5	754.7	682.3	609.8	543.0
20°	1310.0	1226.9	1118.6	1025.8	945.2	853.2	776.7	670.0	591.9	516.2	452.7
22.5°	1281.5	1177.3	1073.9	971.3	876.8	773.4	674.1	582.9	502.3	425.8	362.3
25°	1231.8	1125.1	1013.6	902.9	801.1	684.7	580.5	489.3	410.3	341.1	279.3
27.5°	1172.4	1056.8	940.3	844.3	705.0	592.7	488.5	403.0	328.1	259.7	211.7
30°	1099.1	981.0	856.5	722.1	604.1	499.9	405.4	321.6	254.0	201.1	162.0
32.5°	1013.6	883.3	756.3	623.6	510.5	413.6	321.6	249.1	192.1	153.9	128.6
35°	915.1	780.8	646.4	521.9	419.3	324.0	247.5	186.4	149.8	122.9	104.2
37.5°	806.0	666.0	534.9	423.4	330.5	247.5	181.6	140.8	114.0	94.4	79.8
40°	678.2	545.5	429.9	326.5	236.1	173.4	131.1	105.0	87.1	74.9	65.1
42.5°	538.1	424.2	323.2	230.4	160.4	122.1	96.9	79.8	68.4	58.6	52.1
45°	403.8	306.1	219.8	154.7	113.2	87.9	70.8	59.4	51.3	44.8	40.7
47.5°	288.2	202.7	138.4	96.9	74.9	59.4	50.5	43.1	38.3	35.8	32.6
50°	179.9	121.3	80.6	61.1	50.5	42.3	38.3	35.0	30.9	27.7	25.2
52.5°	96.1	66.8	50.5	43.1	38.3	34.2	30.1	26.9	23.6	22.0	18.7
55°	55.4	46.4	38.3	34.2	30.1	26.1	22.8	20.4	18.7	16.3	13.8
57.5°	40.7	35.0	29.3	25.2	22.8	19.5	17.1	15.5	13.0	10.6	9.0
60°	28.5	24.4	22.0	19.5	16.3	13.8	12.2	9.8	8.1	6.5	5.7
62.5°	20.4	17.1	14.7	12.2	10.6	9.0	7.3	5.7	4.9	4.1	3.3
65°	12.2	10.6	9.0	7.3	6.5	4.9	4.1	3.3	2.4	2.4	1.6
67.5°	6.5	5.7	4.9	4.1	3.3	2.4	1.6	1.6	1.6	1.6	1.6
70°	3.3	2.4	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
75°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	0.8
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°	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0
2.5°	986.7	975.3	972.9	962.3	963.9	939.5	936.3	925.7	928.1	926.5	927.3
5°	912.7	910.2	893.9	875.2	867.1	836.9	826.4	811.7	804.4	797.0	795.4
7.5°	858.9	832.1	801.9	777.5	760.4	723.0	700.2	679.8	669.2	659.5	652.1
10°	778.3	740.9	701.8	672.5	652.1	600.0	574.0	544.7	532.5	513.7	507.2
12.5°	687.1	639.9	599.2	556.9	516.2	479.5	456.7	432.3	408.7	394.0	379.4
15°	584.6	534.1	489.3	447.0	414.4	371.3	346.0	318.3	296.3	280.1	266.2
17.5°	486.0	433.1	390.8	350.1	307.7	276.0	249.1	223.1	210.0	195.4	188.1
20°	391.6	341.9	293.1	250.8	225.5	198.7	175.0	160.4	153.1	144.1	139.2
22.5°	307.7	257.3	219.8	185.6	163.6	146.5	136.0	124.6	118.9	112.4	108.3
25°	231.2	191.3	162.8	144.9	131.1	115.6	106.7	97.7	92.0	87.9	84.7
27.5°	174.2	148.2	127.8	114.0	103.4	92.0	84.7	78.2	74.1	70.8	67.6
30°	138.4	118.9	102.6	92.8	83.9	74.9	69.2	63.5	61.1	59.4	57.8
32.5°	110.7	96.1	83.0	75.7	68.4	61.9	58.6	55.4	53.7	52.1	51.3
35°	88.7	77.3	67.6	61.9	58.6	54.5	51.3	48.8	47.2	46.4	44.8
37.5°	70.8	62.7	57.8	53.7	51.3	47.2	44.8	42.3	40.7	39.9	39.1
40°	57.8	52.9	48.8	45.6	42.3	39.9	36.6	35.0	34.2	32.6	31.8
42.5°	46.4	42.3	39.1	36.6	35.0	32.6	30.1	28.5	26.9	26.1	24.4
45°	37.5	34.2	30.9	29.3	27.7	25.2	22.8	20.4	20.4	18.7	17.9
47.5°	30.1	26.9	24.4	22.8	20.4	18.7	17.1	15.5	14.7	13.8	13.0
50°	22.0	20.4	17.9	17.1	15.5	13.0	12.2	10.6	9.8	9.0	8.1
52.5°	17.1	15.5	13.0	11.4	10.6	9.0	8.1	6.5	5.7	4.9	4.9
55°	12.2	10.6	9.0	7.3	6.5	4.9	4.1	3.3	3.3	2.4	2.4
57.5°	8.1	6.5	5.7	4.1	3.3	3.3	2.4	1.6	1.6	1.6	0.8
60°	4.9	4.1	3.3	2.4	1.6	1.6	1.6	1.6	0.8	0.8	1.6
62.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
65°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8	1.6	0.8
70°	1.6	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8
72.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	1.6	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
85°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	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: P130255

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6WFL - 456P

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1025.0	1025.0	1025.0	1025.0
2.5°	902.9	899.6	910.2	913.5
5°	788.9	764.5	775.1	773.4
7.5°	627.7	613.1	626.1	622.8
10°	482.8	468.9	477.9	475.5
12.5°	359.9	349.3	350.1	348.5
15°	252.4	246.7	243.4	247.5
17.5°	175.0	171.0	170.2	173.4
20°	131.9	127.8	127.8	131.1
22.5°	103.4	99.3	99.3	100.1
25°	79.8	79.0	77.3	79.0
27.5°	65.1	62.7	63.5	62.7
30°	55.4	53.7	54.5	54.5
32.5°	48.8	48.0	48.0	48.0
35°	43.1	42.3	42.3	42.3
37.5°	37.5	36.6	36.6	36.6
40°	30.1	29.3	29.3	30.1
42.5°	22.8	22.8	22.8	22.8
45°	17.1	16.3	16.3	16.3
47.5°	12.2	11.4	11.4	11.4
50°	7.3	6.5	6.5	7.3
52.5°	4.1	3.3	3.3	4.1
55°	1.6	1.6	1.6	1.6
57.5°	0.8	0.8	0.8	0.8
60°	0.8	0.8	0.8	1.6
62.5°	0.8	0.8	1.6	1.6
65°	0.8	0.8	1.6	1.6
67.5°	1.6	0.8	0.8	0.8
70°	0.8	0.8	0.8	0.8
72.5°	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.8
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)