

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: P130178

Luminaire Tested: **HL612ICAT - HLM6930 - HL6FL - 456P**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130178
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33453)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6930 - HL6FL - 456P
Description: HALO ALLSLOPE 6" 21W, Black Coilex Baffle, White Metal Trim Ring
using 40 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: 1465.9 lumens
Efficiency: N/A
Efficacy: 76.7 lumens/watt
Spacing Criteria (0/90/45): 1.62 / 0.66 / 1.08
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

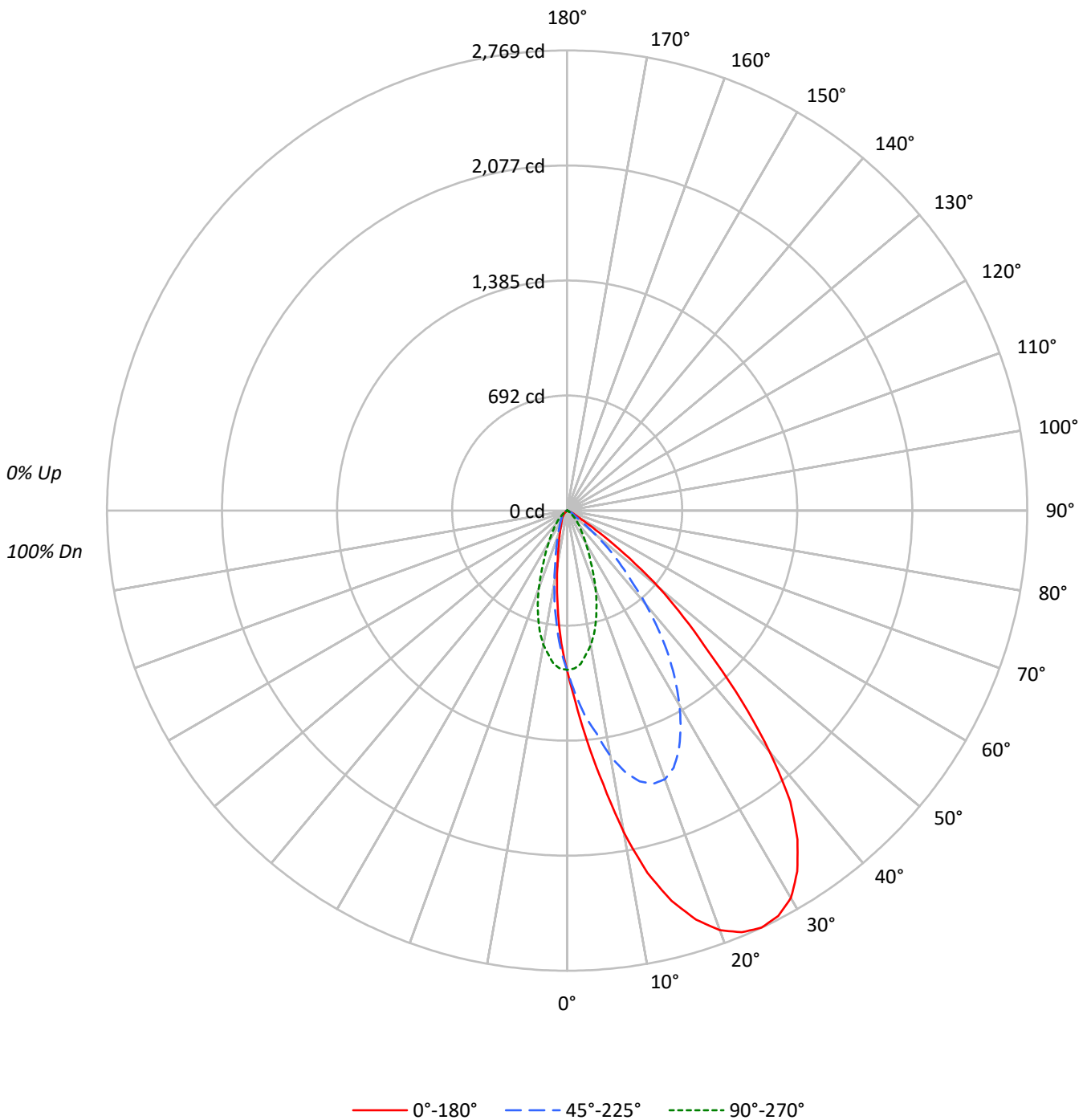
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P130178

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6FL - 456P

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	107	105	103	103	101	99	100	98	96	96	95	94	92				92
2	106	101	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	83				83
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	77	76				76
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69				69
5	88	78	71	66	86	77	71	66	75	70	66	73	69	65	72	68	64	63				63
6	82	72	65	60	81	71	65	60	70	64	60	68	63	59	67	62	59	57				57
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52				52
8	73	62	55	51	72	61	55	50	60	54	50	59	54	50	58	53	50	48				48
9	69	58	51	47	68	57	51	46	56	50	46	55	50	46	54	49	46	44				44
10	65	54	47	43	64	54	47	43	53	47	43	52	46	43	51	46	43	41				41

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	57237	57237	57237
5°	81658	54259	36370
10°	113777	47512	19274
15°	140259	38698	10892
20°	155596	28873	6811
25°	162276	19362	4805
30°	160926	13212	3813
35°	148409	9105	3103
40°	120828	6594	2217
45°	80412	4255	1381
50°	51048	2744	642
55°	19803	1811	128
60°	5756	1079	65
65°	3131	369	153
70°	1422	171	171
75°	197	197	93
80°	0	233	110
85°	0	288	0



TEST NUMBER: P130178

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6FL - 456P

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.4	6.3
10°-20°	276.9	18.9
20°-30°	403.2	27.5
30°-40°	390.0	26.6
40°-50°	226.9	15.5
50°-60°	62.1	4.2
60°-70°	11.6	0.8
70°-80°	1.9	0.1
80°-90°	0.9	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°	772.6	52.7
0°-40°	1162.5	79.3
0°-60°	1451.5	99.0
0°-90°	1465.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1465.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	959	959	959	959	959	
5°	1394	1240	927	703	621	150
15°	2431	1688	671	258	189	688
25°	2769	1590	330	109	82	1268
35°	2416	1063	148	62	50	1481
45°	1206	442	64	29	21	960
55°	262	62	24	8	2	277
65°	35	20	4	2	2	37
75°	2	1	2	1	1	4
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P130178

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6FL - 456P

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9
2.5°	1152.7	1146.1	1137.8	1148.6	1130.4	1132.8	1118.8	1125.4	1093.9	1099.7	1089.0
5°	1394.5	1386.2	1376.3	1364.7	1346.5	1342.4	1310.1	1307.6	1259.5	1239.7	1220.6
7.5°	1658.7	1654.5	1635.5	1614.8	1583.3	1554.3	1503.8	1489.8	1416.9	1351.5	1330.8
10°	1965.1	1960.1	1917.1	1907.1	1855.8	1801.9	1711.7	1664.5	1562.6	1501.3	1429.3
12.5°	2232.6	2218.5	2186.2	2168.0	2095.1	2032.2	1923.7	1843.4	1704.2	1610.7	1498.0
15°	2431.3	2423.9	2398.2	2373.3	2302.1	2229.2	2095.1	1999.0	1816.9	1687.7	1544.4
17.5°	2580.4	2567.9	2547.2	2519.1	2447.0	2355.1	2206.1	2099.2	1891.4	1723.3	1554.3
20°	2686.4	2673.9	2705.4	2619.3	2536.5	2445.4	2275.6	2148.9	1914.6	1720.8	1531.2
22.5°	2746.0	2685.5	2710.4	2678.1	2586.2	2485.1	2302.9	2149.7	1888.1	1674.4	1475.7
25°	2769.2	2710.4	2730.2	2691.3	2592.8	2477.7	2277.3	2097.6	1813.5	1590.0	1392.9
27.5°	2750.1	2739.4	2706.2	2661.5	2555.5	2421.4	2245.8	1989.9	1696.8	1479.0	1287.7
30°	2693.0	2674.8	2639.2	2591.1	2476.0	2313.7	2059.5	1834.2	1555.2	1353.1	1166.8
32.5°	2576.2	2567.1	2532.3	2466.1	2331.1	2140.6	1877.3	1653.7	1400.3	1210.7	1032.6
35°	2415.6	2411.4	2366.7	2280.6	2111.7	1907.1	1648.7	1467.4	1236.4	1063.3	887.7
37.5°	2205.2	2186.2	2129.0	2026.4	1842.5	1652.1	1434.3	1276.1	1072.4	900.1	745.3
40°	1896.4	1898.8	1830.9	1712.5	1556.0	1407.8	1220.6	1077.4	886.1	733.7	591.3
42.5°	1557.7	1543.6	1492.2	1395.3	1283.6	1138.6	967.2	847.1	684.8	567.2	453.8
45°	1205.7	1180.0	1148.6	1078.2	992.1	895.2	761.0	666.6	539.1	442.2	340.3
47.5°	951.5	932.4	912.6	852.1	786.7	695.6	593.7	515.9	409.9	323.8	245.1
50°	723.8	717.1	699.7	653.4	585.5	517.6	436.4	358.6	270.0	204.5	159.8
52.5°	473.7	502.7	454.6	432.3	372.6	315.5	255.1	194.6	142.4	111.0	89.4
55°	262.5	259.2	251.7	218.6	183.0	149.9	113.4	91.1	72.0	62.1	54.7
57.5°	128.4	129.2	120.1	102.7	83.6	72.9	62.1	56.3	49.7	45.5	42.2
60°	70.4	70.4	67.9	62.1	55.5	52.2	46.4	43.1	38.9	36.4	33.1
62.5°	48.9	48.0	47.2	44.7	42.2	38.9	35.6	33.1	29.8	28.2	24.8
65°	34.8	34.8	34.0	32.3	30.6	28.2	25.7	24.0	21.5	19.9	18.2
67.5°	24.0	23.2	23.2	23.2	20.7	19.9	17.4	16.6	14.1	12.4	11.6
70°	14.1	14.1	13.2	13.2	12.4	10.8	9.9	9.1	7.5	6.6	5.8
72.5°	5.8	5.8	5.8	5.8	5.0	5.0	4.1	3.3	3.3	2.5	2.5
75°	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.8	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



TEST NUMBER: P130178

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6FL - 456P

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9
2.5°	1079.0	1050.9	1041.8	1007.0	1006.1	987.1	964.7	952.3	931.6	914.2	905.1
5°	1196.6	1142.0	1113.8	1056.7	1037.6	998.7	957.3	926.6	889.4	855.4	829.8
7.5°	1287.7	1219.0	1164.3	1085.6	1022.7	988.8	929.1	872.0	831.4	784.2	750.3
10°	1357.3	1267.0	1190.0	1090.6	1032.6	958.1	881.9	820.6	761.0	701.4	658.3
12.5°	1404.5	1290.2	1192.5	1074.0	998.7	909.3	821.5	752.7	679.0	615.3	565.6
15°	1420.2	1286.9	1170.1	1035.1	944.9	846.3	751.1	670.8	593.7	527.5	470.4
17.5°	1407.8	1256.2	1121.2	981.3	875.3	768.5	669.9	587.1	507.6	435.6	377.6
20°	1370.5	1202.4	1055.0	905.9	798.3	684.8	584.6	498.5	419.0	349.5	301.4
22.5°	1305.1	1127.9	974.7	819.8	708.0	596.2	495.2	409.9	339.5	286.5	246.8
25°	1214.8	1031.0	875.3	721.3	614.5	502.7	408.3	330.4	274.1	234.4	204.5
27.5°	1109.7	929.1	774.3	626.9	523.4	423.2	323.0	272.4	226.9	191.3	166.4
30°	986.3	809.1	667.4	531.6	432.3	334.6	266.6	221.1	188.0	158.2	139.9
32.5°	858.7	698.1	566.4	440.5	345.3	270.0	219.4	183.0	154.0	132.5	116.8
35°	728.7	585.5	459.6	349.5	274.1	221.1	178.0	148.2	128.4	110.1	97.7
37.5°	601.2	471.2	361.9	269.1	217.0	176.4	144.9	123.4	106.8	93.6	83.6
40°	463.7	354.4	273.3	209.5	171.4	141.6	120.1	103.5	89.4	78.7	70.4
42.5°	349.5	268.3	212.8	168.9	138.3	116.8	98.5	85.3	72.9	63.8	58.0
45°	260.9	206.2	164.8	131.7	108.5	91.1	75.4	63.8	55.5	49.7	44.7
47.5°	190.5	151.5	121.7	93.6	77.0	64.6	54.7	48.0	43.9	39.7	36.4
50°	121.7	94.4	77.8	61.3	52.2	47.2	42.2	38.9	35.6	32.3	29.0
52.5°	69.6	58.0	50.5	44.7	40.6	38.1	34.0	30.6	27.3	24.8	22.4
55°	48.0	43.9	40.6	35.6	33.1	29.0	26.5	24.0	21.5	19.0	17.4
57.5°	38.9	35.6	31.5	28.2	24.8	23.2	21.5	18.2	16.6	14.1	12.4
60°	29.8	27.3	24.8	21.5	19.9	17.4	15.7	13.2	11.6	9.1	8.3
62.5°	22.4	20.7	18.2	15.7	14.1	11.6	9.9	8.3	7.5	5.8	4.1
65°	16.6	14.1	12.4	9.9	9.1	7.5	5.8	4.1	4.1	3.3	2.5
67.5°	9.9	8.3	7.5	5.8	5.0	4.1	3.3	2.5	1.7	1.7	1.7
70°	5.0	4.1	3.3	2.5	2.5	1.7	1.7	1.7	1.7	1.7	1.7
72.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
75°	0.8	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	0.8	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	0.8	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	0.8	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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: P130178

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6FL - 456P

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9	958.9
2.5°	896.0	876.1	872.0	851.3	840.5	841.4	818.2	819.0	807.4	802.4	793.3
5°	809.9	780.9	742.8	734.5	708.9	703.1	672.4	661.7	643.4	631.0	625.2
7.5°	714.7	677.4	650.1	612.0	583.8	569.7	544.1	530.8	502.7	502.7	477.0
10°	612.0	569.7	538.3	496.9	463.7	443.0	417.4	393.3	376.0	356.9	348.6
12.5°	513.4	461.3	429.0	386.7	356.1	332.1	312.2	293.1	275.8	265.8	255.1
15°	417.4	366.0	336.2	301.4	275.8	257.5	236.8	224.4	212.0	203.7	199.6
17.5°	337.0	291.5	264.2	237.7	215.3	204.5	187.2	176.4	165.6	159.0	150.7
20°	267.5	234.4	212.8	190.5	173.1	161.5	149.9	139.9	134.2	127.5	124.2
22.5°	217.0	192.1	173.1	152.4	140.8	133.3	121.7	115.1	109.3	104.3	101.9
25°	177.2	155.7	141.6	127.5	115.9	109.3	103.5	96.1	91.9	87.8	85.3
27.5°	146.6	130.8	118.4	106.0	97.7	92.7	86.1	82.0	78.7	76.2	73.7
30°	123.4	109.3	100.2	91.1	83.6	80.3	75.4	72.0	68.7	67.1	65.4
32.5°	103.5	93.6	86.1	78.7	72.9	70.4	67.1	64.6	62.1	60.5	58.8
35°	87.8	78.7	74.5	69.6	64.6	62.1	58.8	57.1	55.5	53.0	52.2
37.5°	75.4	69.6	63.8	60.5	56.3	53.8	50.5	48.0	46.4	45.5	43.9
40°	63.8	58.8	54.7	50.5	46.4	44.7	41.4	39.7	38.9	37.3	35.6
42.5°	51.3	46.4	44.7	41.4	38.1	36.4	34.0	32.3	31.5	29.8	29.0
45°	41.4	38.1	36.4	33.1	30.6	29.0	26.5	24.8	24.0	22.4	21.5
47.5°	34.0	30.6	29.0	25.7	24.0	23.2	20.7	19.9	18.2	17.4	15.7
50°	25.7	24.0	22.4	19.9	19.0	17.4	15.7	14.1	12.4	11.6	10.8
52.5°	20.7	19.0	17.4	14.9	13.2	11.6	9.9	9.1	8.3	6.6	5.8
55°	15.7	14.1	11.6	9.9	9.1	7.5	5.8	5.0	4.1	3.3	2.5
57.5°	10.8	9.1	7.5	5.8	5.0	4.1	2.5	2.5	1.7	1.7	1.7
60°	6.6	5.0	4.1	3.3	2.5	1.7	1.7	1.7	1.7	0.8	0.8
62.5°	3.3	2.5	2.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
65°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	0.8
72.5°	1.7	1.7	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8	0.8
75°	1.7	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	1.7	1.7	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	1.7	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	1.7	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
87.5°	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	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: P130178

CATALOG NUMBER: HL612ICAT - HLM6930 - HL6FL - 456P

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	958.9	958.9	958.9	958.9
2.5°	794.1	787.5	775.9	801.6
5°	622.7	607.8	606.2	621.1
7.5°	471.2	456.3	453.8	464.6
10°	343.7	332.9	331.2	332.9
12.5°	249.3	246.8	242.6	245.1
15°	192.9	186.3	186.3	188.8
17.5°	148.2	145.7	143.3	144.9
20°	120.1	117.6	115.1	117.6
22.5°	98.5	96.9	95.2	96.9
25°	83.6	82.0	80.3	82.0
27.5°	72.9	71.2	70.4	71.2
30°	64.6	62.9	62.9	63.8
32.5°	58.0	57.1	56.3	57.1
35°	51.3	50.5	49.7	50.5
37.5°	43.1	42.2	41.4	42.2
40°	35.6	34.8	34.0	34.8
42.5°	28.2	26.5	26.5	27.3
45°	20.7	19.9	19.9	20.7
47.5°	14.9	14.9	14.9	14.9
50°	9.9	9.1	9.1	9.1
52.5°	5.8	5.0	5.0	5.0
55°	2.5	1.7	1.7	1.7
57.5°	0.8	0.8	0.8	0.8
60°	0.8	0.8	0.8	0.8
62.5°	1.7	1.7	0.8	1.7
65°	1.7	1.7	1.7	1.7
67.5°	1.7	1.7	1.7	1.7
70°	1.7	1.7	0.8	1.7
72.5°	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8
77.5°	0.8	0.8	0.8	0.8
80°	0.8	0.8	0.0	0.8
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

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