

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: P130209

Luminaire Tested: **HL612ICAT - HLM6927 - HL6NFL - 455TBZ**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P130209
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P33470)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: HL612ICAT - HLM6927 - HL6NFL - 455TBZ
Description: HALO ALLSLOPE 6" 21W, Tuscan Bronze Reflector, Tuscan Bronze Metal Trim Ring using 25 Degree Optic at a 6-12 Pitch
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1348.6 lumens
Efficiency: N/A
Efficacy: 70.6 lumens/watt
Spacing Criteria (0/90/45): 1.88 / 0.71 / 1.15
Luminous Opening: Vertical Cylinder (Dia: 0.48' x H: 0.1')
CIE Type: Direct

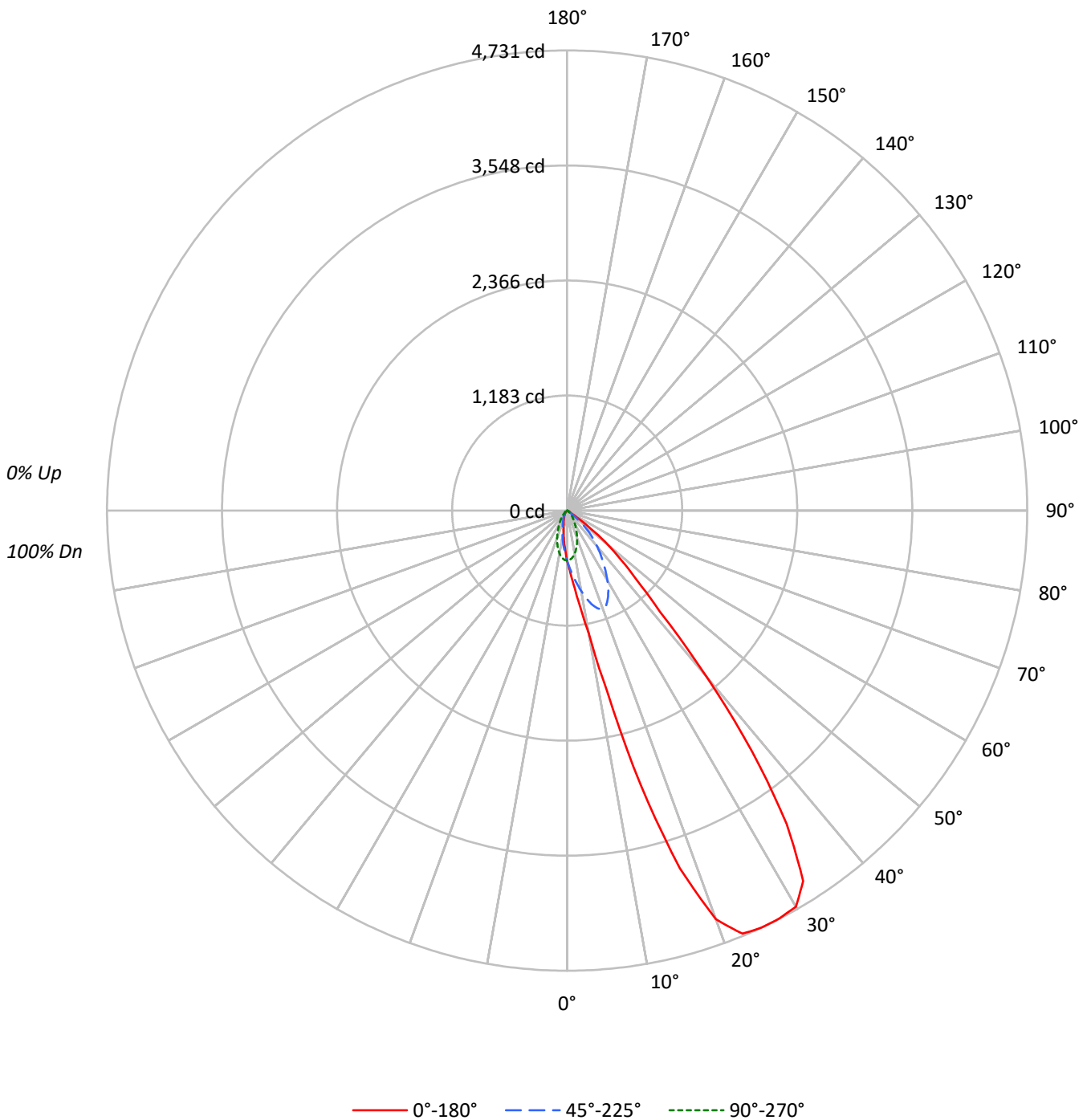
Input Watts (W): 19.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

Luminous Intensity Polar Plot





TEST NUMBER: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

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	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92					92			
2	106	100	96	92	104	99	94	91	95	92	89	92	89	87	90	87	85	83					83			
3	100	92	86	82	97	91	85	81	88	84	80	85	82	79	83	80	77	76					76			
4	93	85	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70	69					69			
5	88	78	71	66	86	77	71	66	75	69	65	73	68	65	72	67	64	62					62			
6	82	72	65	60	80	71	64	60	69	63	59	68	63	59	66	62	58	57					57			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52					52			
8	72	61	54	50	71	61	54	50	60	54	49	58	53	49	57	52	49	47					47			
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43					43			
10	64	53	46	42	63	52	46	42	52	46	42	51	45	41	50	45	41	40					40			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	30633	30633	30633
5°	44398	29074	19722
10°	74330	25915	12199
15°	168481	21870	8030
20°	258925	17440	5618
25°	277256	12986	4231
30°	280991	9585	3352
35°	241776	7035	2556
40°	141765	5155	1950
45°	67581	3401	1167
50°	38868	2208	564
55°	10780	1433	113
60°	2861	957	0
65°	1835	459	0
70°	958	151	0
75°	336	174	0
80°	0	206	0
85°	0	254	0



TEST NUMBER: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.4	3.8
10°-20°	221.2	16.4
20°-30°	443.8	32.9
30°-40°	400.2	29.7
40°-50°	179.1	13.3
50°-60°	42.2	3.1
60°-70°	8.1	0.6
70°-80°	1.8	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°	716.3	53.1
0°-40°	1116.5	82.8
0°-60°	1337.8	99.2
0°-90°	1348.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1348.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	513	513	513	513	513	
5°	758	666	496	385	337	88
15°	2920	1005	379	182	139	869
25°	4731	992	222	92	72	2172
35°	3935	643	114	54	42	2331
45°	1013	322	51	25	18	869
55°	143	41	19	7	2	176
65°	20	15	5	2	0	21
75°	3	2	2	1	0	4
85°	0	2	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2
2.5°	614.6	616.0	612.4	602.9	608.7	600.7	593.4	594.2	583.2	588.3	573.7
5°	758.2	754.5	753.8	735.6	734.9	718.8	712.3	693.3	672.9	666.3	641.5
7.5°	969.6	955.7	940.4	920.8	907.6	874.8	850.0	812.9	774.9	753.1	708.6
10°	1283.8	1266.3	1240.1	1192.7	1154.8	1089.2	1022.8	955.7	891.6	843.5	773.5
12.5°	1903.5	1846.6	1737.3	1622.1	1530.2	1375.7	1231.3	1121.2	1013.3	929.5	830.4
15°	2920.5	2835.2	2682.1	2429.1	2156.4	1798.5	1522.9	1299.1	1132.9	1004.6	871.2
17.5°	3854.3	3777.8	3587.5	3239.8	2909.5	2367.1	1852.4	1491.6	1229.1	1056.4	891.6
20°	4470.4	4452.1	4259.7	3877.7	3459.9	2881.1	2202.4	1636.7	1287.4	1073.1	886.5
22.5°	4708.0	4714.6	4581.9	4250.9	3804.8	3146.5	2391.9	1693.5	1289.6	1051.2	855.1
25°	4731.3	4763.4	4684.0	4380.7	3918.5	3213.5	2373.7	1632.3	1217.5	992.2	800.5
27.5°	4726.2	4757.6	4673.0	4336.2	3812.8	3063.3	2153.5	1493.0	1137.3	916.4	721.0
30°	4702.2	4718.9	4562.2	4135.0	3506.6	2709.8	1839.3	1320.3	1025.0	827.4	671.4
32.5°	4515.6	4517.7	4222.5	3695.4	3013.0	2178.3	1509.1	1132.2	897.4	733.4	602.9
35°	3935.3	3886.4	3541.6	3053.1	2335.1	1669.5	1224.8	963.8	777.9	643.0	529.3
37.5°	3128.2	3075.7	2762.3	2244.7	1657.8	1292.6	1017.0	816.5	673.6	562.1	457.1
40°	2225.0	2126.6	1891.8	1533.9	1246.6	1017.7	836.9	683.1	575.9	478.2	388.6
42.5°	1409.9	1412.8	1290.4	1110.3	969.6	812.1	676.5	567.2	476.8	394.4	319.3
45°	1013.3	1006.0	941.2	839.8	753.8	647.4	554.1	466.6	389.3	321.5	258.1
47.5°	759.6	753.8	719.5	653.2	590.5	524.9	447.6	373.3	310.6	247.1	194.6
50°	551.1	559.9	532.2	482.6	433.0	379.8	320.8	254.4	207.0	159.7	120.3
52.5°	314.9	327.3	307.6	273.4	245.0	207.8	171.3	133.4	105.0	78.7	63.4
55°	142.9	134.9	129.8	116.6	101.3	84.6	70.7	57.6	48.1	40.8	37.2
57.5°	52.5	51.8	51.8	47.4	43.7	40.8	37.2	34.3	32.8	30.6	29.9
60°	35.0	35.0	34.3	32.8	32.1	31.3	29.9	28.4	27.0	24.8	23.3
62.5°	26.2	27.0	26.2	25.5	25.5	24.8	23.3	22.6	21.1	19.7	19.0
65°	20.4	20.4	20.4	19.7	19.7	19.0	18.2	17.5	16.0	14.6	13.9
67.5°	14.6	14.6	14.6	14.6	13.9	13.9	13.1	11.7	11.7	10.2	9.5
70°	9.5	9.5	9.5	9.5	8.7	8.7	8.0	8.0	7.3	6.6	5.8
72.5°	5.8	5.8	5.8	5.1	5.1	5.1	4.4	4.4	4.4	3.6	2.9
75°	2.9	2.9	2.2	2.2	2.2	2.2	2.2	1.5	1.5	1.5	1.5
77.5°	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5
80°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.5	1.5
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: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2
2.5°	568.6	556.2	548.2	540.9	532.9	523.4	515.4	509.6	499.4	498.6	484.8
5°	625.5	603.6	583.2	565.0	548.2	529.3	511.8	496.5	479.0	469.5	449.8
7.5°	680.2	643.0	610.9	581.8	554.1	524.9	498.6	476.1	449.8	435.2	407.5
10°	723.9	674.3	628.4	588.3	550.4	512.5	478.2	447.6	417.0	395.1	365.2
12.5°	744.3	691.1	632.1	582.5	535.1	489.9	449.1	414.8	381.3	357.9	324.4
15°	777.1	692.6	624.0	565.0	510.3	460.7	414.1	379.1	343.4	314.9	280.7
17.5°	775.7	681.6	604.4	538.0	478.2	425.0	378.4	339.7	301.8	273.4	240.6
20°	756.7	656.8	573.7	504.5	441.8	384.9	339.0	301.1	261.0	234.0	209.2
22.5°	720.3	620.4	536.6	464.4	400.2	344.1	296.7	259.5	223.1	198.3	171.3
25°	672.9	575.9	489.9	420.6	359.4	302.5	256.6	221.6	190.3	167.7	150.9
27.5°	621.1	524.9	441.1	374.0	316.4	260.3	220.2	188.8	161.8	142.2	123.9
30°	562.8	470.2	391.5	329.5	270.5	221.6	187.4	160.4	137.1	121.7	107.2
32.5°	501.6	412.6	341.2	282.9	230.4	188.1	158.2	135.6	116.6	104.2	91.9
35°	434.5	357.2	291.6	238.4	193.9	158.2	132.7	114.5	99.1	89.7	78.7
37.5°	372.5	303.3	245.0	198.3	161.1	131.2	111.5	96.2	83.8	76.5	67.8
40°	311.3	248.6	201.2	162.6	132.0	108.6	92.6	80.9	70.7	64.9	59.8
42.5°	253.7	204.9	163.3	131.2	107.2	89.7	75.8	65.6	57.6	53.2	47.4
45°	201.9	161.8	128.3	104.2	83.1	68.5	58.3	51.0	45.2	42.3	37.2
47.5°	148.0	115.2	92.6	72.2	59.8	49.6	43.0	38.6	35.0	33.5	31.3
50°	90.4	70.0	57.6	46.7	40.8	36.5	33.5	31.3	28.4	26.2	23.3
52.5°	49.6	41.6	37.9	34.3	32.1	29.2	27.0	24.8	21.9	20.4	18.2
55°	33.5	32.1	30.6	27.7	25.5	22.6	20.4	19.0	17.5	16.0	14.6
57.5°	27.7	26.2	24.1	21.9	19.7	17.5	16.0	15.3	13.1	12.4	10.9
60°	21.9	20.4	19.0	17.5	16.0	13.9	13.1	11.7	10.2	8.7	8.0
62.5°	16.8	15.3	14.6	13.1	11.7	10.2	9.5	8.0	7.3	5.8	5.1
65°	12.4	11.7	10.2	9.5	8.0	7.3	6.6	5.1	4.4	3.6	2.9
67.5°	8.7	8.0	7.3	5.8	5.1	4.4	3.6	2.9	2.2	2.2	1.5
70°	5.1	4.4	4.4	3.6	2.9	2.2	2.2	1.5	1.5	1.5	1.5
72.5°	2.9	2.2	2.2	2.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2	513.2
2.5°	474.6	470.9	476.8	455.6	452.0	452.7	449.1	440.3	433.8	433.0	427.2
5°	431.6	422.1	414.1	396.6	389.3	384.9	377.6	366.0	358.7	356.5	348.5
7.5°	386.4	373.3	362.3	339.7	331.7	325.9	314.2	303.3	292.3	289.4	277.8
10°	344.1	325.1	313.5	286.5	276.3	269.7	254.4	245.7	236.2	230.4	224.5
12.5°	298.2	279.9	263.2	242.0	229.6	221.6	208.5	198.3	192.5	187.4	180.1
15°	254.4	236.9	221.6	201.2	190.3	182.3	171.3	162.6	156.7	152.4	147.3
17.5°	215.8	199.0	184.4	167.7	157.5	150.9	142.9	130.5	129.0	126.8	123.9
20°	182.3	166.9	154.6	140.0	132.0	126.8	119.6	113.7	108.6	106.4	102.1
22.5°	153.1	140.0	129.8	118.1	112.3	107.2	101.3	97.7	91.9	90.4	87.5
25°	129.8	119.6	111.5	101.3	97.0	91.9	86.8	83.1	79.5	78.0	75.8
27.5°	109.4	102.8	96.2	87.5	83.1	80.2	75.1	72.2	69.3	67.8	66.3
30°	95.5	88.2	83.1	75.8	72.9	70.0	66.3	63.4	61.2	59.1	58.3
32.5°	83.1	77.3	73.6	67.1	64.9	62.0	59.1	56.1	53.9	52.5	50.3
35°	72.2	67.1	64.2	59.1	57.6	53.9	51.0	48.8	46.7	45.2	43.7
37.5°	62.0	58.3	56.1	51.0	49.6	46.7	43.7	42.3	40.1	38.6	37.2
40°	52.5	49.6	46.7	43.0	40.8	38.6	36.5	35.0	33.5	32.8	31.3
42.5°	43.0	40.1	37.9	35.0	33.5	32.1	29.9	28.4	27.7	26.2	24.8
45°	34.3	32.8	30.6	27.7	27.0	24.8	22.6	21.9	20.4	19.0	18.2
47.5°	27.7	25.5	24.1	21.1	19.7	18.2	17.5	16.0	15.3	14.6	13.9
50°	21.1	19.7	18.2	16.8	15.3	14.6	13.1	11.7	10.9	10.2	9.5
52.5°	16.8	15.3	14.6	12.4	11.7	10.2	9.5	8.0	7.3	6.6	5.8
55°	13.1	11.7	10.9	8.7	8.0	6.6	5.8	5.1	4.4	3.6	2.9
57.5°	9.5	8.0	7.3	5.8	5.1	4.4	2.9	2.2	1.5	1.5	0.7
60°	6.6	5.8	4.4	3.6	2.9	2.2	1.5	0.7	0.7	0.7	0.7
62.5°	4.4	3.6	2.9	2.2	1.5	1.5	1.5	0.7	0.7	0.7	0.7
65°	2.2	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7
67.5°	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7
70°	1.5	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7
72.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.7
75°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
77.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
80°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
82.5°	1.5	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.0
85°	1.5	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.7	0.0
87.5°	1.5	1.5	1.5	0.7	0.7	0.7	0.7	0.7	0.7	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: P130209

CATALOG NUMBER: HL612ICAT - HLM6927 - HL6NFL - 455TBZ

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	513.2	513.2	513.2	513.2
2.5°	436.0	430.1	419.9	417.0
5°	352.8	348.5	341.9	336.8
7.5°	279.9	274.8	271.9	266.8
10°	223.1	218.7	215.8	210.7
12.5°	180.8	176.4	172.0	170.6
15°	147.3	145.1	140.0	139.2
17.5°	121.0	118.8	117.4	115.2
20°	103.5	100.6	98.4	97.0
22.5°	88.2	86.0	83.8	83.8
25°	75.1	74.4	72.9	72.2
27.5°	66.3	65.6	64.2	63.4
30°	59.1	57.6	56.9	56.1
32.5°	51.0	49.6	48.8	48.8
35°	43.7	42.3	41.6	41.6
37.5°	37.9	36.5	35.7	35.7
40°	31.3	30.6	30.6	30.6
42.5°	25.5	24.1	24.1	24.1
45°	18.2	17.5	17.5	17.5
47.5°	13.9	13.1	12.4	12.4
50°	9.5	8.7	8.7	8.0
52.5°	5.8	5.1	4.4	4.4
55°	2.2	2.2	1.5	1.5
57.5°	0.7	0.0	0.0	0.0
60°	0.7	0.0	0.0	0.0
62.5°	0.7	0.7	0.0	0.0
65°	0.7	0.0	0.0	0.0
67.5°	0.7	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)