

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P644130

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1200LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644130
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-132)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692H WW - 1200LM - 5000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

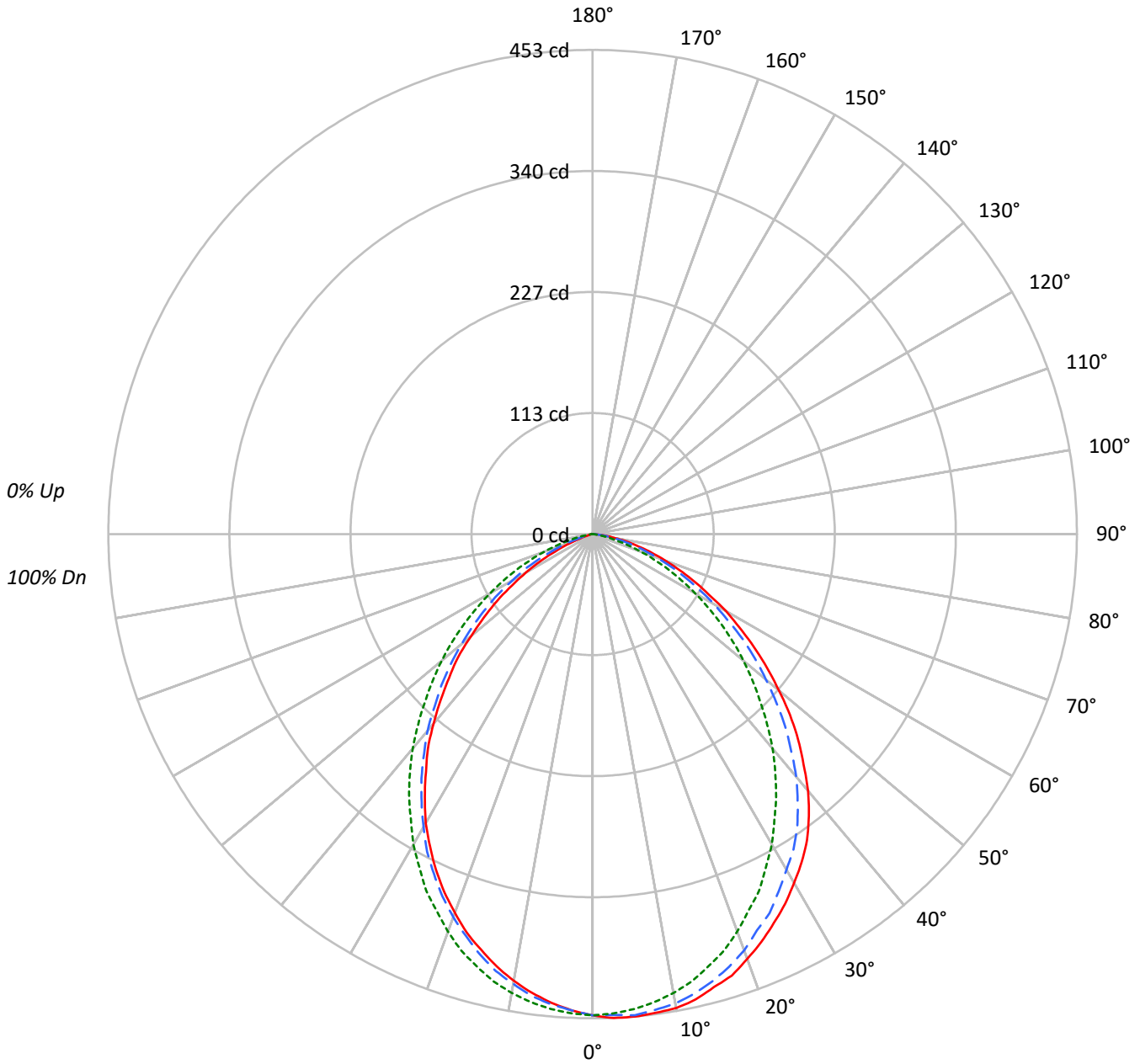
Lumens per Lamp: N/A
Luminaire Lumens: 931.8 lumens
Efficiency: N/A
Efficacy: 69.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 13.4
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: 24 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	100	100	100	100		
	1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88	88	88	88	88	88		
	2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76	76	76	76	76	76		
	3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66	66	66	66	66	66		
	4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57	57	57	57	57	57		
	5	80	69	60	54	78	68	60	54	66	59	54	64	58	53	62	57	53	51	51	51	51	51	51		
	6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45	45	45	45	45	45		
	7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40	40	40	40	40	40		
	8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36	36	36	36	36	36		
	9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33	33	33	33	33	33		
	10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30	30	30	30	30	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	24686	24686	24686	24686	24686
5°	24939	24862	24543	24307	24230
10°	25066	24827	24265	23786	23625
15°	24904	24580	23763	23110	22861
20°	24677	24175	23085	22244	21988
25°	24280	23669	22277	21237	20971
30°	23858	22953	21218	20035	19763
35°	23396	22339	20030	18678	18196
40°	22442	21211	18735	17197	16574
45°	21080	19746	17180	15505	14722
50°	19385	18038	15710	13620	12639
55°	17605	16363	14031	11689	10446
60°	15777	14352	12148	9462	7883
65°	13620	12323	10079	7095	5033
70°	11524	10146	7613	4376	2308
75°	9447	7922	4872	1525	911
80°	6819	5462	2273	442	442
85°	3648	2705	881	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 21080 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.3	4.5
10°-20°	118.2	12.7
20°-30°	170.4	18.3
30°-40°	190.5	20.4
40°-50°	174.7	18.7
50°-60°	131.2	14.1
60°-70°	74.9	8.0
70°-80°	26.1	2.8
80°-90°	3.4	0.4
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°	331.0	35.5
0°-40°	521.4	56.0
0°-60°	827.3	88.8
0°-90°	931.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	931.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	450	450	450	450	450	
5°	453	452	446	442	440	43
15°	439	433	419	407	403	124
25°	401	391	368	351	347	185
35°	350	334	299	279	272	218
45°	272	255	222	200	190	209
55°	184	171	147	122	109	165
65°	105	95	78	55	39	105
75°	45	37	23	7	4	48
85°	6	4	1	0	0	8
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3
2.5°	453.2	451.8	451.8	451.8	451.8	451.8	451.8	451.8	451.8	451.8	450.3
5°	453.2	453.2	453.2	453.2	453.2	453.2	453.2	451.8	451.8	451.8	451.8
7.5°	451.8	451.8	451.8	451.8	451.8	451.8	451.8	450.3	450.3	448.9	448.9
10°	450.3	450.3	450.3	448.9	448.9	448.9	448.9	448.9	447.4	447.4	446.0
12.5°	446.0	446.0	446.0	446.0	444.6	444.6	444.6	443.1	441.7	441.7	440.3
15°	438.8	440.3	440.3	438.8	438.8	438.8	438.8	437.4	435.9	434.5	433.1
17.5°	433.1	433.1	433.1	431.6	430.2	431.6	430.2	428.7	427.3	425.9	424.4
20°	423.0	423.0	421.5	421.5	421.5	421.5	420.1	418.7	417.2	415.8	414.4
22.5°	412.9	412.9	412.9	410.0	410.0	410.0	408.6	408.6	405.7	404.3	401.4
25°	401.4	401.4	401.4	400.0	398.5	397.1	398.5	395.7	394.2	391.3	391.3
27.5°	389.9	389.9	388.5	388.5	387.0	387.0	385.6	382.7	381.3	379.8	376.9
30°	376.9	376.9	375.5	375.5	374.1	372.6	372.6	369.8	368.3	365.4	362.6
32.5°	364.0	364.0	362.6	362.6	361.1	359.7	359.7	356.8	353.9	351.1	349.6
35°	349.6	349.6	348.2	348.2	346.7	345.3	343.9	341.0	339.5	335.2	333.8
37.5°	332.3	333.8	330.9	330.9	329.5	328.0	326.6	325.2	322.3	319.4	315.1
40°	313.6	312.2	312.2	310.8	309.3	309.3	307.9	305.0	303.6	299.3	296.4
42.5°	292.1	292.1	292.1	290.6	289.2	289.2	286.3	284.9	282.0	279.1	274.8
45°	271.9	271.9	270.5	270.5	267.6	267.6	266.2	263.3	261.8	257.5	254.7
47.5°	250.3	248.9	248.9	247.5	246.0	246.0	244.6	243.1	240.3	236.0	233.1
50°	227.3	227.3	227.3	225.9	224.4	224.4	223.0	220.1	218.7	215.8	211.5
52.5°	205.7	205.7	205.7	204.3	202.9	202.9	201.4	200.0	197.1	194.2	191.4
55°	184.2	184.2	184.2	182.7	182.7	179.8	179.8	178.4	175.5	172.6	171.2
57.5°	162.6	162.6	162.6	162.6	161.1	161.1	159.7	158.3	155.4	153.9	149.6
60°	143.9	142.4	142.4	141.0	141.0	139.6	138.1	136.7	135.2	132.4	130.9
62.5°	122.3	123.7	122.3	122.3	120.9	120.9	120.9	118.0	116.5	113.7	112.2
65°	105.0	105.0	105.0	105.0	102.2	102.2	102.2	99.3	97.8	97.8	95.0
67.5°	87.8	87.8	87.8	86.3	86.3	86.3	84.9	83.4	82.0	80.6	79.1
70°	71.9	71.9	71.9	70.5	70.5	69.1	69.1	67.6	66.2	66.2	63.3
72.5°	57.5	57.5	57.5	57.5	56.1	56.1	54.7	54.7	53.2	51.8	50.4
75°	44.6	44.6	44.6	43.2	43.2	43.2	41.7	41.7	40.3	38.8	37.4
77.5°	33.1	31.7	31.7	31.7	31.7	30.2	30.2	30.2	28.8	27.3	27.3
80°	21.6	21.6	21.6	21.6	21.6	20.1	20.1	20.1	18.7	18.7	17.3
82.5°	12.9	12.9	12.9	12.9	12.9	11.5	11.5	11.5	10.1	10.1	10.1
85°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	4.3	4.3	4.3
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3
2.5°	451.8	451.8	450.3	450.3	450.3	450.3	450.3	448.9	448.9	448.9	448.9
5°	451.8	450.3	448.9	448.9	448.9	448.9	447.4	447.4	447.4	446.0	446.0
7.5°	447.4	447.4	447.4	446.0	446.0	444.6	444.6	443.1	443.1	441.7	441.7
10°	444.6	443.1	443.1	441.7	441.7	440.3	440.3	437.4	435.9	435.9	434.5
12.5°	438.8	437.4	437.4	434.5	434.5	434.5	433.1	430.2	428.7	428.7	427.3
15°	431.6	430.2	428.7	425.9	425.9	424.4	423.0	421.5	420.1	418.7	417.2
17.5°	423.0	420.1	418.7	417.2	415.8	414.4	412.9	411.5	408.6	408.6	405.7
20°	412.9	410.0	408.6	405.7	404.3	404.3	401.4	398.5	397.1	395.7	392.8
22.5°	400.0	398.5	395.7	392.8	391.3	391.3	388.5	385.6	384.1	381.3	379.8
25°	388.5	384.1	382.7	379.8	378.4	378.4	375.5	372.6	369.8	368.3	365.4
27.5°	374.1	371.2	369.8	365.4	364.0	362.6	359.7	356.8	353.9	351.1	348.2
30°	359.7	356.8	353.9	349.6	349.6	346.7	343.9	339.5	338.1	335.2	330.9
32.5°	345.3	342.4	338.1	335.2	332.3	330.9	326.6	323.7	320.8	316.5	315.1
35°	329.5	325.2	322.3	318.0	316.5	313.6	310.8	306.5	303.6	299.3	294.9
37.5°	312.2	306.5	303.6	299.3	297.8	294.9	292.1	289.2	284.9	280.6	277.7
40°	293.5	287.7	283.4	280.6	277.7	274.8	273.4	267.6	264.7	261.8	259.0
42.5°	271.9	267.6	263.3	260.4	257.5	256.1	251.8	248.9	244.6	241.7	238.8
45°	251.8	247.5	243.1	238.8	237.4	236.0	233.1	228.8	224.4	221.6	218.7
47.5°	230.2	227.3	221.6	220.1	217.2	215.8	211.5	208.6	207.2	202.9	200.0
50°	208.6	205.7	202.9	198.5	197.1	195.7	192.8	189.9	187.0	184.2	181.3
52.5°	187.0	185.6	182.7	178.4	178.4	177.0	174.1	171.2	168.3	165.5	162.6
55°	168.3	165.5	162.6	159.7	158.3	156.8	153.9	152.5	149.6	146.8	143.9
57.5°	148.2	145.3	143.9	141.0	139.6	138.1	135.2	133.8	130.9	128.0	125.2
60°	129.5	126.6	125.2	122.3	120.9	120.9	118.0	115.1	113.7	110.8	107.9
62.5°	110.8	107.9	106.5	103.6	103.6	102.2	100.7	97.8	96.4	93.5	92.1
65°	93.5	92.1	89.2	87.8	86.3	84.9	83.4	82.0	79.1	77.7	74.8
67.5°	77.7	74.8	73.4	71.9	70.5	69.1	67.6	66.2	63.3	61.9	59.0
70°	61.9	60.4	59.0	57.5	56.1	56.1	53.2	51.8	48.9	47.5	44.6
72.5°	48.9	47.5	46.0	43.2	43.2	41.7	40.3	38.8	36.0	34.5	31.7
75°	36.0	36.0	33.1	31.7	31.7	30.2	28.8	27.3	25.9	23.0	21.6
77.5°	25.9	24.5	23.0	21.6	20.1	20.1	18.7	17.3	15.8	14.4	11.5
80°	17.3	15.8	14.4	12.9	12.9	11.5	10.1	10.1	8.6	7.2	5.8
82.5°	8.6	8.6	7.2	7.2	5.8	5.8	5.8	4.3	4.3	2.9	2.9
85°	4.3	2.9	2.9	2.9	2.9	2.9	1.4	1.4	1.4	1.4	0.0
87.5°	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3
2.5°	448.9	447.4	448.9	448.9	447.4	447.4	447.4	447.4	446.0	447.4	446.0
5°	446.0	444.6	444.6	444.6	444.6	443.1	443.1	441.7	441.7	441.7	441.7
7.5°	440.3	438.8	438.8	437.4	437.4	437.4	437.4	435.9	435.9	434.5	434.5
10°	434.5	433.1	431.6	431.6	430.2	430.2	430.2	428.7	427.3	427.3	425.9
12.5°	424.4	424.4	423.0	423.0	421.5	421.5	420.1	418.7	418.7	417.2	417.2
15°	415.8	414.4	412.9	412.9	411.5	410.0	408.6	408.6	407.2	407.2	405.7
17.5°	404.3	401.4	401.4	400.0	398.5	398.5	397.1	395.7	394.2	394.2	394.2
20°	391.3	389.9	388.5	387.0	385.6	385.6	384.1	382.7	381.3	379.8	379.8
22.5°	376.9	375.5	374.1	372.6	372.6	371.2	369.8	368.3	366.9	365.4	365.4
25°	362.6	361.1	359.7	358.2	356.8	355.4	353.9	352.5	351.1	349.6	349.6
27.5°	346.7	343.9	342.4	341.0	339.5	338.1	338.1	335.2	335.2	333.8	332.3
30°	329.5	326.6	323.7	323.7	322.3	320.8	318.0	318.0	316.5	315.1	313.6
32.5°	310.8	309.3	306.5	306.5	303.6	302.1	300.7	299.3	297.8	296.4	296.4
35°	293.5	289.2	287.7	287.7	284.9	283.4	282.0	279.1	279.1	276.2	276.2
37.5°	274.8	271.9	270.5	267.6	266.2	264.7	263.3	260.4	259.0	257.5	256.1
40°	256.1	253.2	250.3	248.9	247.5	244.6	243.1	240.3	240.3	237.4	236.0
42.5°	236.0	233.1	230.2	228.8	227.3	224.4	223.0	220.1	218.7	217.2	215.8
45°	215.8	212.9	211.5	210.1	208.6	207.2	202.9	201.4	200.0	197.1	195.7
47.5°	197.1	194.2	191.4	191.4	188.5	187.0	184.2	181.3	179.8	177.0	175.5
50°	178.4	175.5	172.6	171.2	171.2	166.9	165.5	162.6	159.7	156.8	155.4
52.5°	159.7	156.8	153.9	152.5	151.1	148.2	145.3	143.9	141.0	138.1	136.7
55°	141.0	138.1	135.2	133.8	132.4	129.5	128.0	123.7	122.3	119.4	116.5
57.5°	123.7	120.9	118.0	116.5	115.1	112.2	109.3	106.5	105.0	102.2	99.3
60°	105.0	103.6	100.7	99.3	97.8	96.4	92.1	89.2	86.3	84.9	82.0
62.5°	89.2	86.3	83.4	82.0	80.6	79.1	76.3	73.4	71.9	67.6	64.7
65°	73.4	70.5	67.6	66.2	64.7	63.3	60.4	57.5	54.7	51.8	50.4
67.5°	56.1	54.7	51.8	51.8	50.4	47.5	44.6	43.2	40.3	38.8	36.0
70°	43.2	41.7	38.8	37.4	36.0	33.1	31.7	28.8	27.3	25.9	23.0
72.5°	30.2	28.8	25.9	24.5	23.0	21.6	18.7	17.3	15.8	14.4	12.9
75°	20.1	17.3	15.8	14.4	14.4	11.5	10.1	8.6	7.2	5.8	5.8
77.5°	11.5	10.1	7.2	7.2	7.2	5.8	4.3	4.3	2.9	2.9	2.9
80°	5.8	4.3	2.9	2.9	2.9	2.9	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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: P644130

CATALOG NUMBER: ML5615LSWW9FS1E - 692H WW - 1200LM - 5000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	450.3	450.3	450.3	450.3	450.3	450.3	450.3	450.3
2.5°	446.0	446.0	446.0	446.0	446.0	446.0	446.0	446.0
5°	441.7	440.3	440.3	440.3	440.3	440.3	440.3	440.3
7.5°	434.5	434.5	433.1	434.5	433.1	433.1	433.1	433.1
10°	425.9	425.9	425.9	425.9	424.4	424.4	424.4	424.4
12.5°	417.2	415.8	415.8	415.8	414.4	415.8	414.4	414.4
15°	405.7	404.3	404.3	404.3	404.3	402.8	404.3	402.8
17.5°	392.8	392.8	391.3	392.8	391.3	391.3	391.3	391.3
20°	378.4	378.4	378.4	376.9	378.4	376.9	376.9	376.9
22.5°	364.0	364.0	362.6	362.6	362.6	362.6	362.6	362.6
25°	348.2	348.2	348.2	348.2	346.7	346.7	346.7	346.7
27.5°	332.3	330.9	330.9	330.9	329.5	330.9	329.5	329.5
30°	313.6	313.6	312.2	312.2	312.2	310.8	310.8	312.2
32.5°	293.5	293.5	293.5	293.5	292.1	292.1	292.1	292.1
35°	274.8	274.8	273.4	273.4	273.4	271.9	271.9	271.9
37.5°	254.7	254.7	253.2	253.2	253.2	251.8	251.8	253.2
40°	234.5	234.5	233.1	233.1	233.1	231.6	231.6	231.6
42.5°	214.4	212.9	212.9	211.5	211.5	211.5	210.1	210.1
45°	194.2	192.8	192.8	192.8	191.4	189.9	189.9	189.9
47.5°	174.1	172.6	171.2	171.2	169.8	169.8	169.8	171.2
50°	153.9	152.5	152.5	151.1	149.6	149.6	149.6	148.2
52.5°	133.8	132.4	132.4	130.9	130.9	129.5	128.0	128.0
55°	115.1	113.7	112.2	110.8	110.8	109.3	109.3	109.3
57.5°	96.4	95.0	93.5	93.5	92.1	92.1	90.6	89.2
60°	79.1	77.7	76.3	76.3	74.8	73.4	71.9	71.9
62.5°	63.3	61.9	60.4	59.0	57.5	56.1	54.7	56.1
65°	48.9	46.0	44.6	43.2	43.2	41.7	40.3	38.8
67.5°	34.5	33.1	31.7	30.2	28.8	27.3	25.9	25.9
70°	21.6	18.7	18.7	18.7	17.3	15.8	14.4	14.4
72.5°	11.5	10.1	8.6	8.6	7.2	7.2	7.2	7.2
75°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - - 90°-270°

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(END OF REPORT)