

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: P644138

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 900LM - 3500K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644138
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 - 900LM - 3500K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

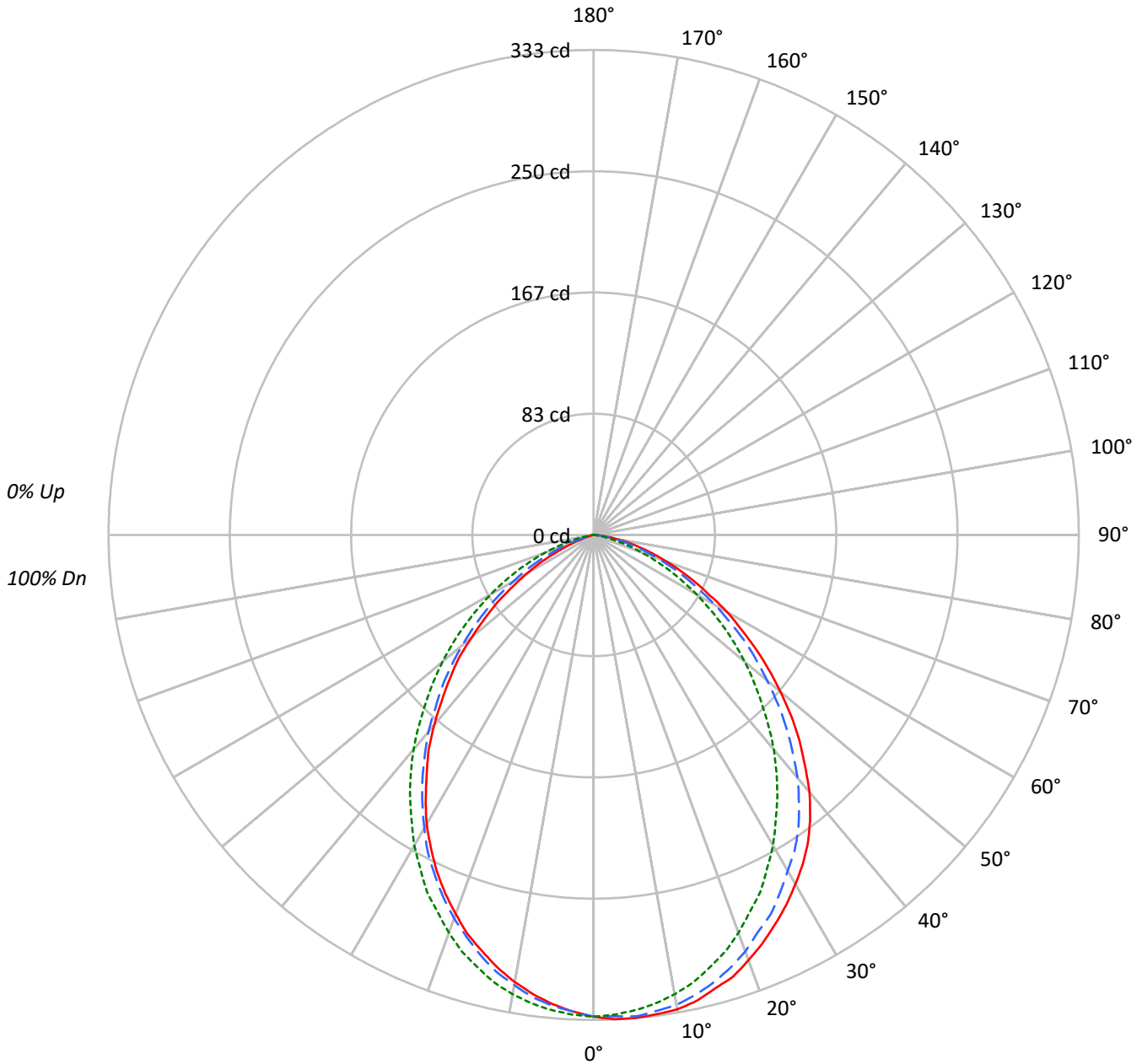
Lumens per Lamp: N/A
Luminaire Lumens: 684.5 lumens
Efficiency: N/A
Efficacy: 65.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 10.5
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			
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88					88			
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76					76			
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66					66			
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57					57			
5	80	69	60	54	78	68	60	54	66	59	54	64	58	53	62	57	53	51					51			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45					45			
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40					40			
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36					36			
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33					33			
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	18135	18135	18135	18135	18135
5°	18319	18264	18028	17857	17797
10°	18414	18236	17824	17474	17357
15°	18292	18053	17452	16975	16794
20°	18126	17758	16953	16341	16154
25°	17838	17390	16368	15600	15406
30°	17528	16857	15585	14717	14515
35°	17186	16410	14710	13719	13365
40°	16488	15579	13761	12631	12180
45°	15482	14505	12621	11389	10815
50°	14243	13253	11539	10004	9288
55°	12931	12023	10303	8583	7675
60°	11589	10547	8925	6951	5789
65°	10014	9054	7407	5215	3697
70°	8463	7453	5594	3222	1699
75°	6947	5825	3580	1123	678
80°	5020	4009	1673	347	347
85°	2642	2013	692	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 15482 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.1	4.5
10°-20°	86.9	12.7
20°-30°	125.2	18.3
30°-40°	139.9	20.4
40°-50°	128.3	18.7
50°-60°	96.4	14.1
60°-70°	55.0	8.0
70°-80°	19.2	2.8
80°-90°	2.5	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°	243.1	35.5
0°-40°	383.0	56.0
0°-60°	607.7	88.8
0°-90°	684.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	684.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	331	331	331	331	331	
5°	333	332	328	324	323	32
15°	322	318	308	299	296	91
25°	295	288	271	258	255	136
35°	257	245	220	205	200	160
45°	200	187	163	147	140	154
55°	135	126	108	90	80	121
65°	77	70	57	40	28	77
75°	33	28	17	5	3	35
85°	4	3	1	0	0	6
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°	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8
2.5°	332.9	331.9	331.9	331.9	331.9	331.9	331.9	331.9	331.9	331.9	330.8
5°	332.9	332.9	332.9	332.9	332.9	332.9	332.9	331.9	331.9	331.9	331.9
7.5°	331.9	331.9	331.9	331.9	331.9	331.9	331.9	330.8	330.8	329.7	329.7
10°	330.8	330.8	330.8	329.7	329.7	329.7	329.7	329.7	328.7	328.7	327.6
12.5°	327.6	327.6	327.6	327.6	326.6	326.6	326.6	325.5	324.5	324.5	323.4
15°	322.3	323.4	323.4	322.3	322.3	322.3	322.3	321.3	320.2	319.2	318.1
17.5°	318.1	318.1	318.1	317.1	316.0	317.1	316.0	314.9	313.9	312.8	311.8
20°	310.7	310.7	309.7	309.7	309.7	309.7	308.6	307.5	306.5	305.4	304.4
22.5°	303.3	303.3	303.3	301.2	301.2	301.2	300.1	300.1	298.0	297.0	294.9
25°	294.9	294.9	294.9	293.8	292.7	291.7	292.7	290.6	289.6	287.5	287.5
27.5°	286.4	286.4	285.4	285.4	284.3	284.3	283.2	281.1	280.1	279.0	276.9
30°	276.9	276.9	275.8	275.8	274.8	273.7	273.7	271.6	270.6	268.4	266.3
32.5°	267.4	267.4	266.3	266.3	265.3	264.2	264.2	262.1	260.0	257.9	256.8
35°	256.8	256.8	255.8	255.8	254.7	253.6	252.6	250.5	249.4	246.2	245.2
37.5°	244.1	245.2	243.1	243.1	242.0	241.0	239.9	238.8	236.7	234.6	231.5
40°	230.4	229.3	229.3	228.3	227.2	227.2	226.2	224.1	223.0	219.8	217.7
42.5°	214.5	214.5	214.5	213.5	212.4	212.4	210.3	209.3	207.1	205.0	201.9
45°	199.7	199.7	198.7	198.7	196.6	196.6	195.5	193.4	192.3	189.2	187.1
47.5°	183.9	182.8	182.8	181.8	180.7	180.7	179.7	178.6	176.5	173.3	171.2
50°	167.0	167.0	167.0	165.9	164.9	164.9	163.8	161.7	160.6	158.5	155.4
52.5°	151.1	151.1	151.1	150.1	149.0	149.0	148.0	146.9	144.8	142.7	140.6
55°	135.3	135.3	135.3	134.2	134.2	132.1	132.1	131.0	128.9	126.8	125.8
57.5°	119.4	119.4	119.4	119.4	118.4	118.4	117.3	116.3	114.1	113.1	109.9
60°	105.7	104.6	104.6	103.6	103.6	102.5	101.5	100.4	99.3	97.2	96.2
62.5°	89.8	90.9	89.8	89.8	88.8	88.8	88.8	86.7	85.6	83.5	82.4
65°	77.2	77.2	77.2	77.2	75.0	75.0	75.0	72.9	71.9	71.9	69.8
67.5°	64.5	64.5	64.5	63.4	63.4	63.4	62.4	61.3	60.2	59.2	58.1
70°	52.8	52.8	52.8	51.8	51.8	50.7	50.7	49.7	48.6	48.6	46.5
72.5°	42.3	42.3	42.3	42.3	41.2	41.2	40.2	40.2	39.1	38.0	37.0
75°	32.8	32.8	32.8	31.7	31.7	31.7	30.6	30.6	29.6	28.5	27.5
77.5°	24.3	23.3	23.3	23.3	23.3	22.2	22.2	22.2	21.1	20.1	20.1
80°	15.9	15.9	15.9	15.9	15.9	14.8	14.8	14.8	13.7	13.7	12.7
82.5°	9.5	9.5	9.5	9.5	9.5	8.5	8.5	8.5	7.4	7.4	7.4
85°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2
87.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8
2.5°	331.9	331.9	330.8	330.8	330.8	330.8	330.8	329.7	329.7	329.7	329.7
5°	331.9	330.8	329.7	329.7	329.7	329.7	328.7	328.7	328.7	327.6	327.6
7.5°	328.7	328.7	328.7	327.6	327.6	326.6	326.6	325.5	325.5	324.5	324.5
10°	326.6	325.5	325.5	324.5	324.5	323.4	323.4	321.3	320.2	320.2	319.2
12.5°	322.3	321.3	321.3	319.2	319.2	319.2	318.1	316.0	314.9	314.9	313.9
15°	317.1	316.0	314.9	312.8	312.8	311.8	310.7	309.7	308.6	307.5	306.5
17.5°	310.7	308.6	307.5	306.5	305.4	304.4	303.3	302.3	300.1	300.1	298.0
20°	303.3	301.2	300.1	298.0	297.0	297.0	294.9	292.7	291.7	290.6	288.5
22.5°	293.8	292.7	290.6	288.5	287.5	287.5	285.4	283.2	282.2	280.1	279.0
25°	285.4	282.2	281.1	279.0	278.0	278.0	275.8	273.7	271.6	270.6	268.4
27.5°	274.8	272.7	271.6	268.4	267.4	266.3	264.2	262.1	260.0	257.9	255.8
30°	264.2	262.1	260.0	256.8	256.8	254.7	252.6	249.4	248.4	246.2	243.1
32.5°	253.6	251.5	248.4	246.2	244.1	243.1	239.9	237.8	235.7	232.5	231.5
35°	242.0	238.8	236.7	233.6	232.5	230.4	228.3	225.1	223.0	219.8	216.7
37.5°	229.3	225.1	223.0	219.8	218.8	216.7	214.5	212.4	209.3	206.1	204.0
40°	215.6	211.4	208.2	206.1	204.0	201.9	200.8	196.6	194.5	192.3	190.2
42.5°	199.7	196.6	193.4	191.3	189.2	188.1	184.9	182.8	179.7	177.6	175.4
45°	184.9	181.8	178.6	175.4	174.4	173.3	171.2	168.0	164.9	162.8	160.6
47.5°	169.1	167.0	162.8	161.7	159.6	158.5	155.4	153.2	152.2	149.0	146.9
50°	153.2	151.1	149.0	145.8	144.8	143.7	141.6	139.5	137.4	135.3	133.2
52.5°	137.4	136.3	134.2	131.0	131.0	130.0	127.9	125.8	123.7	121.5	119.4
55°	123.7	121.5	119.4	117.3	116.3	115.2	113.1	112.0	109.9	107.8	105.7
57.5°	108.9	106.7	105.7	103.6	102.5	101.5	99.3	98.3	96.2	94.1	91.9
60°	95.1	93.0	91.9	89.8	88.8	88.8	86.7	84.5	83.5	81.4	79.3
62.5°	81.4	79.3	78.2	76.1	76.1	75.0	74.0	71.9	70.8	68.7	67.6
65°	68.7	67.6	65.5	64.5	63.4	62.4	61.3	60.2	58.1	57.1	55.0
67.5°	57.1	55.0	53.9	52.8	51.8	50.7	49.7	48.6	46.5	45.4	43.3
70°	45.4	44.4	43.3	42.3	41.2	41.2	39.1	38.0	35.9	34.9	32.8
72.5°	35.9	34.9	33.8	31.7	31.7	30.6	29.6	28.5	26.4	25.4	23.3
75°	26.4	26.4	24.3	23.3	23.3	22.2	21.1	20.1	19.0	16.9	15.9
77.5°	19.0	18.0	16.9	15.9	14.8	14.8	13.7	12.7	11.6	10.6	8.5
80°	12.7	11.6	10.6	9.5	9.5	8.5	7.4	7.4	6.3	5.3	4.2
82.5°	6.3	6.3	5.3	5.3	4.2	4.2	4.2	3.2	3.2	2.1	2.1
85°	3.2	2.1	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	0.0
87.5°	1.1	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°	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8
2.5°	329.7	328.7	329.7	329.7	328.7	328.7	328.7	328.7	327.6	328.7	327.6
5°	327.6	326.6	326.6	326.6	326.6	325.5	325.5	324.5	324.5	324.5	324.5
7.5°	323.4	322.3	322.3	321.3	321.3	321.3	321.3	320.2	320.2	319.2	319.2
10°	319.2	318.1	317.1	317.1	316.0	316.0	316.0	314.9	313.9	313.9	312.8
12.5°	311.8	311.8	310.7	310.7	309.7	309.7	308.6	307.5	307.5	306.5	306.5
15°	305.4	304.4	303.3	303.3	302.3	301.2	300.1	300.1	299.1	299.1	298.0
17.5°	297.0	294.9	294.9	293.8	292.7	292.7	291.7	290.6	289.6	289.6	289.6
20°	287.5	286.4	285.4	284.3	283.2	283.2	282.2	281.1	280.1	279.0	279.0
22.5°	276.9	275.8	274.8	273.7	273.7	272.7	271.6	270.6	269.5	268.4	268.4
25°	266.3	265.3	264.2	263.2	262.1	261.0	260.0	258.9	257.9	256.8	256.8
27.5°	254.7	252.6	251.5	250.5	249.4	248.4	248.4	246.2	246.2	245.2	244.1
30°	242.0	239.9	237.8	237.8	236.7	235.7	233.6	233.6	232.5	231.5	230.4
32.5°	228.3	227.2	225.1	225.1	223.0	221.9	220.9	219.8	218.8	217.7	217.7
35°	215.6	212.4	211.4	211.4	209.3	208.2	207.1	205.0	205.0	202.9	202.9
37.5°	201.9	199.7	198.7	196.6	195.5	194.5	193.4	191.3	190.2	189.2	188.1
40°	188.1	186.0	183.9	182.8	181.8	179.7	178.6	176.5	176.5	174.4	173.3
42.5°	173.3	171.2	169.1	168.0	167.0	164.9	163.8	161.7	160.6	159.6	158.5
45°	158.5	156.4	155.4	154.3	153.2	152.2	149.0	148.0	146.9	144.8	143.7
47.5°	144.8	142.7	140.6	140.6	138.4	137.4	135.3	133.2	132.1	130.0	128.9
50°	131.0	128.9	126.8	125.8	125.8	122.6	121.5	119.4	117.3	115.2	114.1
52.5°	117.3	115.2	113.1	112.0	111.0	108.9	106.7	105.7	103.6	101.5	100.4
55°	103.6	101.5	99.3	98.3	97.2	95.1	94.1	90.9	89.8	87.7	85.6
57.5°	90.9	88.8	86.7	85.6	84.5	82.4	80.3	78.2	77.2	75.0	72.9
60°	77.2	76.1	74.0	72.9	71.9	70.8	67.6	65.5	63.4	62.4	60.2
62.5°	65.5	63.4	61.3	60.2	59.2	58.1	56.0	53.9	52.8	49.7	47.6
65°	53.9	51.8	49.7	48.6	47.6	46.5	44.4	42.3	40.2	38.0	37.0
67.5°	41.2	40.2	38.0	38.0	37.0	34.9	32.8	31.7	29.6	28.5	26.4
70°	31.7	30.6	28.5	27.5	26.4	24.3	23.3	21.1	20.1	19.0	16.9
72.5°	22.2	21.1	19.0	18.0	16.9	15.9	13.7	12.7	11.6	10.6	9.5
75°	14.8	12.7	11.6	10.6	10.6	8.5	7.4	6.3	5.3	4.2	4.2
77.5°	8.5	7.4	5.3	5.3	5.3	4.2	3.2	3.2	2.1	2.1	2.1
80°	4.2	3.2	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.0	1.1	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



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CATALOG NUMBER: ML5615LSWW9FS1E - 692H WW - 900LM - 3500K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	330.8	330.8	330.8	330.8	330.8	330.8	330.8	330.8
2.5°	327.6	327.6	327.6	327.6	327.6	327.6	327.6	327.6
5°	324.5	323.4	323.4	323.4	323.4	323.4	323.4	323.4
7.5°	319.2	319.2	318.1	319.2	318.1	318.1	318.1	318.1
10°	312.8	312.8	312.8	312.8	311.8	311.8	311.8	311.8
12.5°	306.5	305.4	305.4	305.4	304.4	305.4	304.4	304.4
15°	298.0	297.0	297.0	297.0	297.0	295.9	297.0	295.9
17.5°	288.5	288.5	287.5	288.5	287.5	287.5	287.5	287.5
20°	278.0	278.0	278.0	276.9	278.0	276.9	276.9	276.9
22.5°	267.4	267.4	266.3	266.3	266.3	266.3	266.3	266.3
25°	255.8	255.8	255.8	255.8	254.7	254.7	254.7	254.7
27.5°	244.1	243.1	243.1	243.1	242.0	243.1	242.0	242.0
30°	230.4	230.4	229.3	229.3	229.3	228.3	228.3	229.3
32.5°	215.6	215.6	215.6	215.6	214.5	214.5	214.5	214.5
35°	201.9	201.9	200.8	200.8	200.8	199.7	199.7	199.7
37.5°	187.1	187.1	186.0	186.0	186.0	184.9	184.9	186.0
40°	172.3	172.3	171.2	171.2	171.2	170.2	170.2	170.2
42.5°	157.5	156.4	156.4	155.4	155.4	155.4	154.3	154.3
45°	142.7	141.6	141.6	141.6	140.6	139.5	139.5	139.5
47.5°	127.9	126.8	125.8	125.8	124.7	124.7	124.7	125.8
50°	113.1	112.0	112.0	111.0	109.9	109.9	109.9	108.9
52.5°	98.3	97.2	97.2	96.2	96.2	95.1	94.1	94.1
55°	84.5	83.5	82.4	81.4	81.4	80.3	80.3	80.3
57.5°	70.8	69.8	68.7	68.7	67.6	67.6	66.6	65.5
60°	58.1	57.1	56.0	56.0	55.0	53.9	52.8	52.8
62.5°	46.5	45.4	44.4	43.3	42.3	41.2	40.2	41.2
65°	35.9	33.8	32.8	31.7	31.7	30.6	29.6	28.5
67.5°	25.4	24.3	23.3	22.2	21.1	20.1	19.0	19.0
70°	15.9	13.7	13.7	13.7	12.7	11.6	10.6	10.6
72.5°	8.5	7.4	6.3	6.3	5.3	5.3	5.3	5.3
75°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)