

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: P644107

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 900LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644107
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-129)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592SC WW - 900LM - 3000K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

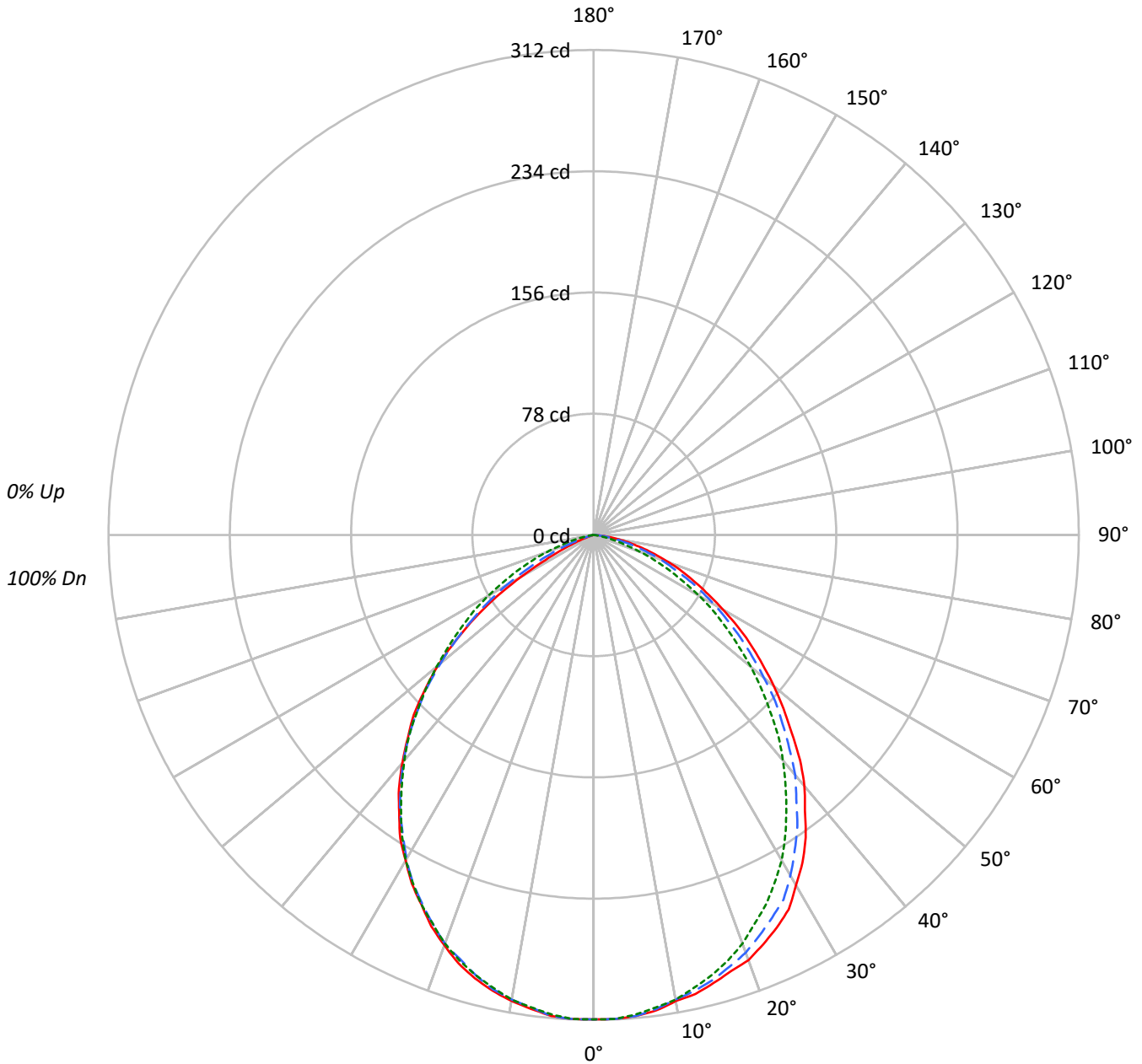
Lumens per Lamp: N/A
Luminaire Lumens: 666.8 lumens
Efficiency: N/A
Efficacy: 63.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

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	105	101	98	100	98	95	97	94	93	93	91	90	88					88			
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76					76			
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66					66			
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58					58			
5	80	69	61	55	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	36	32	42	36	32	41	36	32	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	24606	24606	24606	24606	24606
5°	24621	24621	24541	24621	24621
10°	24408	24328	24328	24328	24408
15°	24387	24215	23962	23962	24134
20°	24454	24026	23505	23505	23598
25°	24284	23657	22847	22760	22847
30°	23727	23071	22041	21941	22041
35°	22907	22011	20816	20922	21018
40°	21733	20775	19507	19610	19724
45°	20095	19180	17918	17918	18264
50°	18569	17562	16174	15793	16051
55°	16997	15855	14300	13171	12882
60°	15109	14130	12346	10231	8447
65°	13449	12291	9993	6724	4035
70°	11864	10456	7363	3324	1177
75°	9730	8144	4392	946	305
80°	7501	5592	1864	0	0
85°	3714	2808	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 20218 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.4	4.4
10°-20°	83.1	12.5
20°-30°	122.6	18.4
30°-40°	138.8	20.8
40°-50°	128.2	19.2
50°-60°	94.7	14.2
60°-70°	50.9	7.6
70°-80°	17.0	2.6
80°-90°	2.2	0.3
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°	235.1	35.3
0°-40°	373.9	56.1
0°-60°	596.7	89.5
0°-90°	666.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	666.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	312	312	312	312	312	
5°	311	311	310	311	311	29
15°	298	296	293	293	295	84
25°	279	272	262	261	262	128
35°	238	228	216	217	218	148
45°	180	172	160	160	164	139
55°	124	115	104	96	94	110
65°	72	66	54	36	22	72
75°	32	27	14	3	1	34
85°	4	3	0	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°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
5°	310.7	310.7	309.7	310.7	310.7	310.7	310.7	309.7	310.7	310.7	310.7
7.5°	308.6	307.6	307.6	307.6	307.6	307.6	307.6	307.6	307.6	307.6	307.6
10°	304.5	304.5	304.5	304.5	304.5	304.5	304.5	304.5	304.5	304.5	303.5
12.5°	302.5	301.4	301.4	301.4	301.4	301.4	301.4	300.4	301.4	300.4	300.4
15°	298.4	298.4	298.4	298.4	298.4	298.4	297.3	297.3	297.3	297.3	296.3
17.5°	294.2	294.2	295.3	295.3	294.2	294.2	294.2	293.2	292.2	292.2	291.1
20°	291.1	291.1	290.1	290.1	289.1	290.1	289.1	288.1	288.1	287.0	286.0
22.5°	285.0	285.0	285.0	285.0	285.0	283.9	283.9	282.9	281.9	280.9	278.8
25°	278.8	278.8	278.8	278.8	277.8	277.8	277.8	275.7	274.7	273.7	271.6
27.5°	271.6	270.6	270.6	270.6	269.5	269.5	268.5	267.5	266.5	265.4	264.4
30°	260.3	260.3	260.3	260.3	259.3	258.2	258.2	257.2	256.2	254.1	253.1
32.5°	250.0	250.0	249.0	247.9	247.9	247.9	246.9	245.9	243.8	242.8	240.7
35°	237.7	236.6	236.6	235.6	235.6	235.6	234.6	232.5	231.5	230.5	228.4
37.5°	223.2	224.3	223.2	223.2	222.2	221.2	220.2	219.1	218.1	216.0	214.0
40°	210.9	210.9	209.9	208.8	207.8	207.8	206.8	205.8	204.7	203.7	201.6
42.5°	196.5	196.5	195.5	195.5	194.4	194.4	192.4	191.4	190.3	189.3	186.2
45°	180.0	180.0	181.1	180.0	179.0	178.0	178.0	177.0	174.9	173.9	171.8
47.5°	165.6	166.7	165.6	164.6	164.6	163.6	163.6	161.5	161.5	159.5	158.4
50°	151.2	151.2	151.2	151.2	150.2	149.2	149.2	148.1	146.1	145.1	143.0
52.5°	136.8	136.8	136.8	136.8	135.8	135.8	134.8	133.7	132.7	130.7	128.6
55°	123.5	122.4	122.4	122.4	121.4	121.4	120.4	119.3	118.3	117.3	115.2
57.5°	110.1	109.1	109.1	108.0	108.0	107.0	107.0	106.0	104.9	102.9	101.9
60°	95.7	96.7	95.7	95.7	94.6	94.6	94.6	93.6	91.6	90.5	89.5
62.5°	83.3	84.4	83.3	82.3	82.3	82.3	82.3	80.2	79.2	78.2	77.2
65°	72.0	72.0	72.0	71.0	71.0	71.0	68.9	68.9	67.9	66.9	65.8
67.5°	61.7	60.7	60.7	60.7	59.7	59.7	58.6	58.6	56.6	56.6	54.5
70°	51.4	50.4	50.4	50.4	49.4	48.4	49.4	47.3	46.3	45.3	45.3
72.5°	41.2	41.2	40.1	40.1	40.1	39.1	39.1	38.1	37.0	36.0	35.0
75°	31.9	31.9	31.9	30.9	30.9	29.8	29.8	28.8	28.8	26.7	26.7
77.5°	23.7	23.7	23.7	22.6	22.6	22.6	21.6	21.6	20.6	19.5	18.5
80°	16.5	15.4	15.4	15.4	15.4	14.4	14.4	14.4	13.4	13.4	12.3
82.5°	9.3	9.3	9.3	9.3	9.3	9.3	8.2	8.2	8.2	7.2	7.2
85°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	311.7	311.7	311.7	311.7	310.7	311.7	310.7	311.7	311.7	311.7	311.7
5°	310.7	309.7	309.7	309.7	310.7	310.7	309.7	309.7	309.7	309.7	309.7
7.5°	307.6	307.6	307.6	306.6	307.6	307.6	306.6	307.6	307.6	306.6	307.6
10°	304.5	304.5	303.5	303.5	303.5	303.5	303.5	303.5	302.5	303.5	303.5
12.5°	300.4	300.4	300.4	299.4	299.4	299.4	299.4	299.4	298.4	298.4	299.4
15°	296.3	296.3	295.3	295.3	295.3	294.2	294.2	294.2	294.2	293.2	293.2
17.5°	291.1	290.1	290.1	289.1	289.1	288.1	288.1	287.0	287.0	287.0	286.0
20°	285.0	283.9	282.9	282.9	281.9	281.9	280.9	280.9	279.8	279.8	278.8
22.5°	277.8	276.7	275.7	274.7	274.7	273.7	273.7	272.6	271.6	270.6	270.6
25°	271.6	269.5	268.5	267.5	265.4	265.4	264.4	264.4	263.4	262.3	261.3
27.5°	262.3	260.3	259.3	258.2	257.2	256.2	254.1	254.1	253.1	252.1	251.0
30°	251.0	250.0	247.9	246.9	245.9	245.9	243.8	241.8	241.8	241.8	240.7
32.5°	239.7	237.7	236.6	234.6	233.5	233.5	232.5	230.5	229.4	229.4	228.4
35°	227.4	225.3	223.2	222.2	221.2	220.2	219.1	218.1	217.1	216.0	215.0
37.5°	213.0	210.9	209.9	208.8	207.8	206.8	205.8	204.7	203.7	202.7	203.7
40°	199.6	197.5	195.5	194.4	193.4	193.4	192.4	191.4	190.3	189.3	189.3
42.5°	185.2	183.1	182.1	181.1	180.0	179.0	178.0	177.0	175.9	175.9	174.9
45°	169.8	168.7	166.7	165.6	164.6	164.6	162.5	161.5	161.5	160.5	160.5
47.5°	156.4	154.3	152.3	151.2	150.2	149.2	148.1	147.1	146.1	146.1	146.1
50°	140.9	139.9	137.9	136.8	135.8	135.8	134.8	133.7	132.7	131.7	131.7
52.5°	126.5	125.5	125.5	123.5	122.4	122.4	120.4	120.4	118.3	117.3	116.3
55°	114.2	112.1	111.1	109.1	109.1	108.0	107.0	106.0	104.9	103.9	102.9
57.5°	99.8	98.8	97.7	96.7	96.7	95.7	94.6	93.6	91.6	91.6	89.5
60°	88.5	86.4	85.4	84.4	83.3	83.3	82.3	81.3	79.2	78.2	77.2
62.5°	76.1	74.1	74.1	73.0	71.0	71.0	70.0	67.9	66.9	64.8	63.8
65°	64.8	63.8	61.7	60.7	60.7	59.7	57.6	56.6	55.6	53.5	51.4
67.5°	53.5	52.5	51.4	49.4	49.4	48.4	46.3	45.3	43.2	42.2	40.1
70°	43.2	42.2	41.2	39.1	39.1	38.1	37.0	35.0	32.9	31.9	29.8
72.5°	34.0	32.9	31.9	29.8	29.8	28.8	26.7	25.7	23.7	21.6	20.6
75°	25.7	24.7	22.6	21.6	20.6	20.6	18.5	17.5	16.5	14.4	13.4
77.5°	17.5	16.5	15.4	14.4	14.4	13.4	12.3	11.3	10.3	9.3	7.2
80°	11.3	10.3	9.3	9.3	8.2	8.2	7.2	6.2	5.1	4.1	3.1
82.5°	6.2	6.2	5.1	4.1	4.1	4.1	3.1	3.1	2.1	1.0	1.0
85°	2.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0	1.0	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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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	311.7	311.7	311.7	311.7	311.7	311.7	310.7	311.7	311.7	311.7	310.7
5°	310.7	309.7	309.7	310.7	309.7	309.7	310.7	310.7	310.7	309.7	309.7
7.5°	306.6	307.6	306.6	306.6	307.6	307.6	307.6	307.6	306.6	306.6	307.6
10°	303.5	303.5	302.5	303.5	302.5	303.5	303.5	303.5	303.5	303.5	303.5
12.5°	298.4	298.4	298.4	299.4	298.4	298.4	299.4	299.4	299.4	299.4	299.4
15°	292.2	292.2	293.2	292.2	293.2	293.2	293.2	293.2	293.2	293.2	294.2
17.5°	286.0	286.0	286.0	286.0	286.0	286.0	286.0	286.0	286.0	287.0	287.0
20°	278.8	278.8	278.8	278.8	278.8	277.8	278.8	278.8	279.8	279.8	279.8
22.5°	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	270.6	271.6	270.6
25°	260.3	260.3	260.3	260.3	260.3	260.3	260.3	261.3	261.3	261.3	262.3
27.5°	251.0	251.0	251.0	250.0	251.0	250.0	251.0	251.0	252.1	251.0	252.1
30°	240.7	239.7	239.7	239.7	239.7	240.7	239.7	239.7	240.7	241.8	240.7
32.5°	227.4	227.4	227.4	228.4	228.4	228.4	229.4	228.4	228.4	229.4	229.4
35°	215.0	215.0	215.0	216.0	216.0	216.0	216.0	217.1	217.1	217.1	218.1
37.5°	201.6	202.7	201.6	202.7	202.7	203.7	203.7	203.7	203.7	204.7	204.7
40°	189.3	188.3	189.3	189.3	189.3	189.3	189.3	189.3	190.3	191.4	191.4
42.5°	174.9	174.9	174.9	174.9	174.9	174.9	175.9	175.9	175.9	177.0	177.0
45°	160.5	159.5	159.5	159.5	159.5	160.5	159.5	160.5	160.5	161.5	161.5
47.5°	145.1	145.1	145.1	145.1	145.1	145.1	145.1	145.1	145.1	146.1	145.1
50°	131.7	130.7	129.6	129.6	128.6	129.6	128.6	128.6	128.6	129.6	128.6
52.5°	116.3	115.2	114.2	114.2	114.2	113.2	112.1	112.1	112.1	111.1	111.1
55°	102.9	101.9	99.8	100.8	98.8	97.7	97.7	96.7	95.7	95.7	94.6
57.5°	88.5	87.4	86.4	85.4	85.4	83.3	82.3	81.3	80.2	79.2	77.2
60°	76.1	74.1	72.0	72.0	71.0	70.0	67.9	65.8	64.8	62.8	61.7
62.5°	62.8	60.7	58.6	57.6	56.6	55.6	53.5	51.4	49.4	48.4	46.3
65°	50.4	48.4	46.3	45.3	44.2	42.2	40.1	38.1	36.0	34.0	32.9
67.5°	38.1	36.0	35.0	32.9	31.9	29.8	27.8	26.7	24.7	22.6	19.5
70°	27.8	25.7	23.7	22.6	21.6	19.5	18.5	16.5	14.4	13.4	11.3
72.5°	18.5	16.5	15.4	14.4	13.4	12.3	10.3	9.3	7.2	6.2	5.1
75°	11.3	10.3	9.3	8.2	7.2	6.2	5.1	4.1	3.1	2.1	1.0
77.5°	6.2	5.1	4.1	4.1	3.1	2.1	2.1	1.0	1.0	1.0	1.0
80°	3.1	2.1	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0
82.5°	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	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	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 - 592SC WW - 900LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
2.5°	311.7	311.7	311.7	311.7	311.7	311.7	311.7	311.7
5°	310.7	310.7	309.7	310.7	309.7	309.7	309.7	310.7
7.5°	307.6	307.6	307.6	307.6	307.6	307.6	307.6	307.6
10°	303.5	303.5	303.5	304.5	304.5	304.5	303.5	304.5
12.5°	299.4	299.4	299.4	300.4	299.4	300.4	299.4	300.4
15°	294.2	294.2	295.3	295.3	294.2	294.2	295.3	295.3
17.5°	287.0	288.1	288.1	288.1	288.1	288.1	288.1	289.1
20°	280.9	280.9	279.8	280.9	280.9	281.9	281.9	280.9
22.5°	270.6	272.6	272.6	272.6	272.6	272.6	272.6	272.6
25°	262.3	262.3	262.3	263.4	262.3	262.3	263.4	262.3
27.5°	252.1	253.1	252.1	253.1	253.1	253.1	253.1	253.1
30°	241.8	241.8	241.8	241.8	241.8	242.8	241.8	241.8
32.5°	229.4	230.5	230.5	230.5	231.5	230.5	230.5	231.5
35°	218.1	218.1	218.1	219.1	218.1	219.1	219.1	218.1
37.5°	204.7	205.8	204.7	205.8	205.8	205.8	205.8	205.8
40°	192.4	191.4	192.4	191.4	192.4	192.4	192.4	191.4
42.5°	177.0	178.0	178.0	178.0	178.0	178.0	178.0	177.0
45°	161.5	162.5	162.5	162.5	162.5	162.5	163.6	163.6
47.5°	145.1	147.1	147.1	147.1	146.1	148.1	147.1	147.1
50°	128.6	128.6	129.6	129.6	130.7	130.7	130.7	130.7
52.5°	112.1	111.1	112.1	112.1	113.2	112.1	113.2	112.1
55°	93.6	93.6	93.6	92.6	93.6	93.6	93.6	93.6
57.5°	77.2	76.1	75.1	74.1	74.1	74.1	73.0	74.1
60°	59.7	57.6	58.6	56.6	55.6	54.5	54.5	53.5
62.5°	44.2	42.2	41.2	40.1	38.1	36.0	36.0	35.0
65°	29.8	27.8	26.7	24.7	23.7	22.6	21.6	21.6
67.5°	18.5	16.5	16.5	15.4	14.4	13.4	12.3	12.3
70°	10.3	9.3	8.2	7.2	7.2	6.2	5.1	5.1
72.5°	4.1	3.1	3.1	2.1	2.1	2.1	2.1	1.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)