

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: P644097

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 1200LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644097
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 - 1200LM - 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

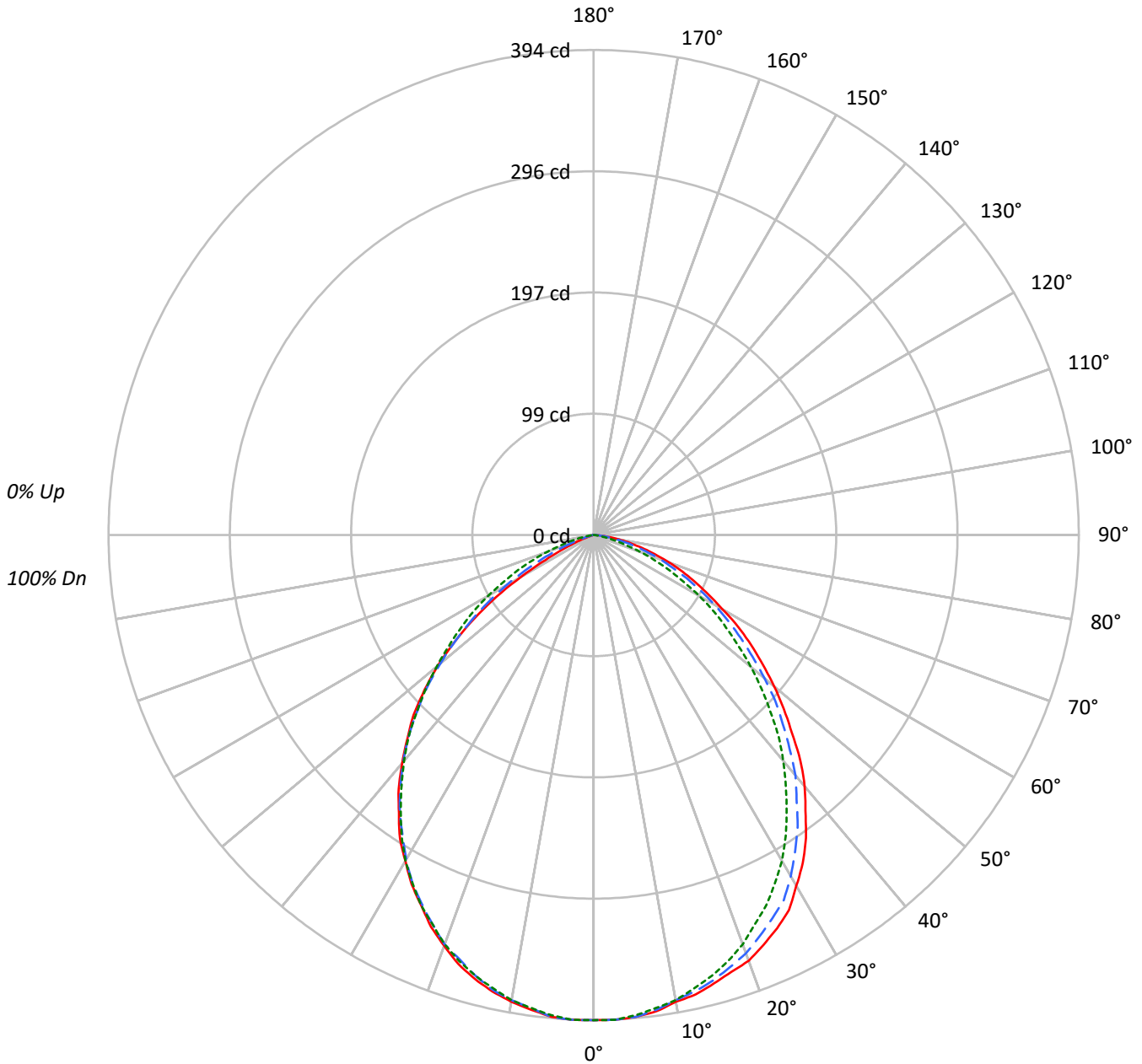
Lumens per Lamp: N/A
Luminaire Lumens: 843.3 lumens
Efficiency: N/A
Efficacy: 62.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

Input Watts (W): 13.4
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: 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	105	101	98	100	98	95	97	94	93	93	91	90	88	88	88	88	88	88		
	2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76	76	76	76	76	76		
	3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66	66	66	66	66	66		
	4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58	58	58	58	58	58		
	5	80	69	61	55	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	36	32	42	36	32	41	36	32	30	30	30	30	30	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	31126	31126	31126	31126	31126
5°	31142	31142	31039	31142	31142
10°	30869	30765	30765	30765	30869
15°	30835	30623	30304	30304	30516
20°	30931	30385	29730	29730	29839
25°	30712	29919	28900	28787	28900
30°	30008	29178	27875	27756	27875
35°	28969	27841	26328	26453	26579
40°	27483	26278	24670	24804	24938
45°	25420	24259	22663	22663	23098
50°	23494	22216	20448	19969	20288
55°	21484	20053	18084	16653	16295
60°	19104	17872	15615	12946	10689
65°	17017	15560	12646	8499	5099
70°	15026	13225	9302	4201	1500
75°	12292	10309	5551	1190	397
80°	9456	7092	2364	0	0
85°	4710	3532	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 25565 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	37.2	4.4
10°-20°	105.1	12.5
20°-30°	155.0	18.4
30°-40°	175.5	20.8
40°-50°	162.1	19.2
50°-60°	119.7	14.2
60°-70°	64.4	7.6
70°-80°	21.5	2.6
80°-90°	2.7	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°	297.3	35.3
0°-40°	472.9	56.1
0°-60°	754.7	89.5
0°-90°	843.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	843.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	394	394	394	394	394	
5°	393	393	392	393	393	37
15°	377	375	371	371	373	107
25°	353	344	332	330	332	162
35°	301	289	273	274	276	187
45°	228	217	203	203	207	176
55°	156	146	131	121	118	139
65°	91	83	68	46	27	91
75°	40	34	18	4	1	44
85°	5	4	0	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°	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3
2.5°	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3
5°	393.0	393.0	391.7	393.0	393.0	393.0	393.0	391.7	393.0	393.0	393.0
7.5°	390.4	389.1	389.1	389.1	389.1	389.1	389.1	389.1	389.1	389.1	389.1
10°	385.1	385.1	385.1	385.1	385.1	385.1	385.1	385.1	385.1	385.1	383.8
12.5°	382.5	381.2	381.2	381.2	381.2	381.2	381.2	379.9	381.2	379.9	379.9
15°	377.3	377.3	377.3	377.3	377.3	377.3	376.0	376.0	376.0	376.0	374.7
17.5°	372.1	372.1	373.4	373.4	372.1	372.1	372.1	370.8	369.5	369.5	368.2
20°	368.2	368.2	366.9	366.9	365.6	366.9	365.6	364.3	364.3	363.0	361.7
22.5°	360.4	360.4	360.4	360.4	360.4	359.1	359.1	357.8	356.5	355.2	352.6
25°	352.6	352.6	352.6	352.6	351.3	351.3	351.3	348.7	347.4	346.1	343.5
27.5°	343.5	342.2	342.2	342.2	340.9	340.9	339.6	338.3	337.0	335.7	334.4
30°	329.2	329.2	329.2	329.2	327.9	326.6	326.6	325.3	324.0	321.4	320.1
32.5°	316.2	316.2	314.9	313.6	313.6	313.6	312.3	311.0	308.4	307.1	304.5
35°	300.6	299.3	299.3	298.0	298.0	298.0	296.7	294.1	292.8	291.5	288.9
37.5°	282.4	283.7	282.4	282.4	281.1	279.8	278.5	277.1	275.8	273.2	270.6
40°	266.7	266.7	265.4	264.1	262.8	262.8	261.5	260.2	258.9	257.6	255.0
42.5°	248.5	248.5	247.2	247.2	245.9	245.9	243.3	242.0	240.7	239.4	235.5
45°	227.7	227.7	229.0	227.7	226.4	225.1	225.1	223.8	221.2	219.9	217.3
47.5°	209.5	210.8	209.5	208.2	208.2	206.9	206.9	204.3	204.3	201.7	200.4
50°	191.3	191.3	191.3	191.3	190.0	188.7	188.7	187.4	184.8	183.5	180.9
52.5°	173.1	173.1	173.1	173.1	171.8	171.8	170.5	169.2	167.9	165.2	162.6
55°	156.1	154.8	154.8	154.8	153.5	153.5	152.2	150.9	149.6	148.3	145.7
57.5°	139.2	137.9	137.9	136.6	136.6	135.3	135.3	134.0	132.7	130.1	128.8
60°	121.0	122.3	121.0	121.0	119.7	119.7	119.7	118.4	115.8	114.5	113.2
62.5°	105.4	106.7	105.4	104.1	104.1	104.1	104.1	101.5	100.2	98.9	97.6
65°	91.1	91.1	91.1	89.8	89.8	89.8	87.2	87.2	85.9	84.6	83.3
67.5°	78.1	76.8	76.8	76.8	75.5	75.5	74.2	74.2	71.6	71.6	69.0
70°	65.1	63.8	63.8	63.8	62.5	61.2	62.5	59.9	58.6	57.3	57.3
72.5°	52.0	52.0	50.7	50.7	50.7	49.4	49.4	48.1	46.8	45.5	44.2
75°	40.3	40.3	40.3	39.0	39.0	37.7	37.7	36.4	36.4	33.8	33.8
77.5°	29.9	29.9	29.9	28.6	28.6	28.6	27.3	27.3	26.0	24.7	23.4
80°	20.8	19.5	19.5	19.5	19.5	18.2	18.2	18.2	16.9	16.9	15.6
82.5°	11.7	11.7	11.7	11.7	11.7	11.7	10.4	10.4	10.4	9.1	9.1
85°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	3.9	3.9	3.9
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3
2.5°	394.3	394.3	394.3	394.3	393.0	394.3	393.0	394.3	394.3	394.3	394.3
5°	393.0	391.7	391.7	391.7	393.0	393.0	391.7	391.7	391.7	391.7	391.7
7.5°	389.1	389.1	389.1	387.7	389.1	389.1	387.7	389.1	389.1	387.7	389.1
10°	385.1	385.1	383.8	383.8	383.8	383.8	383.8	383.8	382.5	383.8	383.8
12.5°	379.9	379.9	379.9	378.6	378.6	378.6	378.6	378.6	377.3	377.3	378.6
15°	374.7	374.7	373.4	373.4	373.4	372.1	372.1	372.1	372.1	370.8	370.8
17.5°	368.2	366.9	366.9	365.6	365.6	364.3	364.3	363.0	363.0	363.0	361.7
20°	360.4	359.1	357.8	357.8	356.5	356.5	355.2	355.2	353.9	353.9	352.6
22.5°	351.3	350.0	348.7	347.4	347.4	346.1	346.1	344.8	343.5	342.2	342.2
25°	343.5	340.9	339.6	338.3	335.7	335.7	334.4	334.4	333.1	331.8	330.5
27.5°	331.8	329.2	327.9	326.6	325.3	324.0	321.4	321.4	320.1	318.8	317.5
30°	317.5	316.2	313.6	312.3	311.0	311.0	308.4	305.8	305.8	305.8	304.5
32.5°	303.2	300.6	299.3	296.7	295.4	295.4	294.1	291.5	290.2	290.2	288.9
35°	287.6	285.0	282.4	281.1	279.8	278.5	277.1	275.8	274.5	273.2	271.9
37.5°	269.3	266.7	265.4	264.1	262.8	261.5	260.2	258.9	257.6	256.3	257.6
40°	252.4	249.8	247.2	245.9	244.6	244.6	243.3	242.0	240.7	239.4	239.4
42.5°	234.2	231.6	230.3	229.0	227.7	226.4	225.1	223.8	222.5	222.5	221.2
45°	214.7	213.4	210.8	209.5	208.2	208.2	205.6	204.3	204.3	203.0	203.0
47.5°	197.8	195.2	192.6	191.3	190.0	188.7	187.4	186.1	184.8	184.8	184.8
50°	178.3	177.0	174.4	173.1	171.8	171.8	170.5	169.2	167.9	166.5	166.5
52.5°	160.0	158.7	158.7	156.1	154.8	154.8	152.2	152.2	149.6	148.3	147.0
55°	144.4	141.8	140.5	137.9	137.9	136.6	135.3	134.0	132.7	131.4	130.1
57.5°	126.2	124.9	123.6	122.3	122.3	121.0	119.7	118.4	115.8	115.8	113.2
60°	111.9	109.3	108.0	106.7	105.4	105.4	104.1	102.8	100.2	98.9	97.6
62.5°	96.3	93.7	93.7	92.4	89.8	89.8	88.5	85.9	84.6	82.0	80.7
65°	82.0	80.7	78.1	76.8	76.8	75.5	72.9	71.6	70.3	67.7	65.1
67.5°	67.7	66.4	65.1	62.5	62.5	61.2	58.6	57.3	54.6	53.3	50.7
70°	54.6	53.3	52.0	49.4	49.4	48.1	46.8	44.2	41.6	40.3	37.7
72.5°	42.9	41.6	40.3	37.7	37.7	36.4	33.8	32.5	29.9	27.3	26.0
75°	32.5	31.2	28.6	27.3	26.0	26.0	23.4	22.1	20.8	18.2	16.9
77.5°	22.1	20.8	19.5	18.2	18.2	16.9	15.6	14.3	13.0	11.7	9.1
80°	14.3	13.0	11.7	11.7	10.4	10.4	9.1	7.8	6.5	5.2	3.9
82.5°	7.8	7.8	6.5	5.2	5.2	5.2	3.9	3.9	2.6	1.3	1.3
85°	2.6	2.6	2.6	2.6	1.3	1.3	1.3	1.3	1.3	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°	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3
2.5°	394.3	394.3	394.3	394.3	394.3	394.3	393.0	394.3	394.3	394.3	393.0
5°	393.0	391.7	391.7	393.0	391.7	391.7	393.0	393.0	393.0	391.7	391.7
7.5°	387.7	389.1	387.7	387.7	389.1	389.1	389.1	389.1	387.7	387.7	389.1
10°	383.8	383.8	382.5	383.8	382.5	383.8	383.8	383.8	383.8	383.8	383.8
12.5°	377.3	377.3	377.3	378.6	377.3	377.3	378.6	378.6	378.6	378.6	378.6
15°	369.5	369.5	370.8	369.5	370.8	370.8	370.8	370.8	370.8	370.8	372.1
17.5°	361.7	361.7	361.7	361.7	361.7	361.7	361.7	361.7	361.7	363.0	363.0
20°	352.6	352.6	352.6	352.6	352.6	351.3	352.6	352.6	353.9	353.9	353.9
22.5°	340.9	340.9	340.9	340.9	340.9	340.9	340.9	340.9	342.2	343.5	342.2
25°	329.2	329.2	329.2	329.2	329.2	329.2	329.2	330.5	330.5	330.5	331.8
27.5°	317.5	317.5	317.5	316.2	317.5	316.2	317.5	317.5	318.8	317.5	318.8
30°	304.5	303.2	303.2	303.2	303.2	304.5	303.2	303.2	304.5	305.8	304.5
32.5°	287.6	287.6	287.6	288.9	288.9	288.9	290.2	288.9	288.9	290.2	290.2
35°	271.9	271.9	271.9	273.2	273.2	273.2	273.2	274.5	274.5	274.5	275.8
37.5°	255.0	256.3	255.0	256.3	256.3	257.6	257.6	257.6	257.6	258.9	258.9
40°	239.4	238.1	239.4	239.4	239.4	239.4	239.4	239.4	240.7	242.0	242.0
42.5°	221.2	221.2	221.2	221.2	221.2	221.2	222.5	222.5	222.5	223.8	223.8
45°	203.0	201.7	201.7	201.7	201.7	203.0	201.7	203.0	203.0	204.3	204.3
47.5°	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	184.8	183.5
50°	166.5	165.2	163.9	163.9	162.6	163.9	162.6	162.6	162.6	163.9	162.6
52.5°	147.0	145.7	144.4	144.4	144.4	143.1	141.8	141.8	141.8	140.5	140.5
55°	130.1	128.8	126.2	127.5	124.9	123.6	123.6	122.3	121.0	121.0	119.7
57.5°	111.9	110.6	109.3	108.0	108.0	105.4	104.1	102.8	101.5	100.2	97.6
60°	96.3	93.7	91.1	91.1	89.8	88.5	85.9	83.3	82.0	79.4	78.1
62.5°	79.4	76.8	74.2	72.9	71.6	70.3	67.7	65.1	62.5	61.2	58.6
65°	63.8	61.2	58.6	57.3	56.0	53.3	50.7	48.1	45.5	42.9	41.6
67.5°	48.1	45.5	44.2	41.6	40.3	37.7	35.1	33.8	31.2	28.6	24.7
70°	35.1	32.5	29.9	28.6	27.3	24.7	23.4	20.8	18.2	16.9	14.3
72.5°	23.4	20.8	19.5	18.2	16.9	15.6	13.0	11.7	9.1	7.8	6.5
75°	14.3	13.0	11.7	10.4	9.1	7.8	6.5	5.2	3.9	2.6	1.3
77.5°	7.8	6.5	5.2	5.2	3.9	2.6	2.6	1.3	1.3	1.3	1.3
80°	3.9	2.6	1.3	1.3	1.3	1.3	0.0	0.0	0.0	0.0	1.3
82.5°	1.3	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



TEST NUMBER: P644097

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1200LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3
2.5°	394.3	394.3	394.3	394.3	394.3	394.3	394.3	394.3
5°	393.0	393.0	391.7	393.0	391.7	391.7	391.7	393.0
7.5°	389.1	389.1	389.1	389.1	389.1	389.1	389.1	389.1
10°	383.8	383.8	383.8	385.1	385.1	385.1	383.8	385.1
12.5°	378.6	378.6	378.6	379.9	378.6	379.9	378.6	379.9
15°	372.1	372.1	373.4	373.4	372.1	372.1	373.4	373.4
17.5°	363.0	364.3	364.3	364.3	364.3	364.3	364.3	365.6
20°	355.2	355.2	353.9	355.2	355.2	356.5	356.5	355.2
22.5°	342.2	344.8	344.8	344.8	344.8	344.8	344.8	344.8
25°	331.8	331.8	331.8	333.1	331.8	331.8	333.1	331.8
27.5°	318.8	320.1	318.8	320.1	320.1	320.1	320.1	320.1
30°	305.8	305.8	305.8	305.8	305.8	307.1	305.8	305.8
32.5°	290.2	291.5	291.5	291.5	292.8	291.5	291.5	292.8
35°	275.8	275.8	275.8	277.1	275.8	277.1	277.1	275.8
37.5°	258.9	260.2	258.9	260.2	260.2	260.2	260.2	260.2
40°	243.3	242.0	243.3	242.0	243.3	243.3	243.3	242.0
42.5°	223.8	225.1	225.1	225.1	225.1	225.1	225.1	223.8
45°	204.3	205.6	205.6	205.6	205.6	205.6	206.9	206.9
47.5°	183.5	186.1	186.1	186.1	184.8	187.4	186.1	186.1
50°	162.6	162.6	163.9	163.9	165.2	165.2	165.2	165.2
52.5°	141.8	140.5	141.8	141.8	143.1	141.8	143.1	141.8
55°	118.4	118.4	118.4	117.1	118.4	118.4	118.4	118.4
57.5°	97.6	96.3	95.0	93.7	93.7	93.7	92.4	93.7
60°	75.5	72.9	74.2	71.6	70.3	69.0	69.0	67.7
62.5°	56.0	53.3	52.0	50.7	48.1	45.5	45.5	44.2
65°	37.7	35.1	33.8	31.2	29.9	28.6	27.3	27.3
67.5°	23.4	20.8	20.8	19.5	18.2	16.9	15.6	15.6
70°	13.0	11.7	10.4	9.1	9.1	7.8	6.5	6.5
72.5°	5.2	3.9	3.9	2.6	2.6	2.6	2.6	1.3
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)