

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: P644154

Luminaire Tested: ML5615LSWW9FS1E - 692SC WW - 900LM - 4000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644154
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-131)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692SC WW - 900LM - 4000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

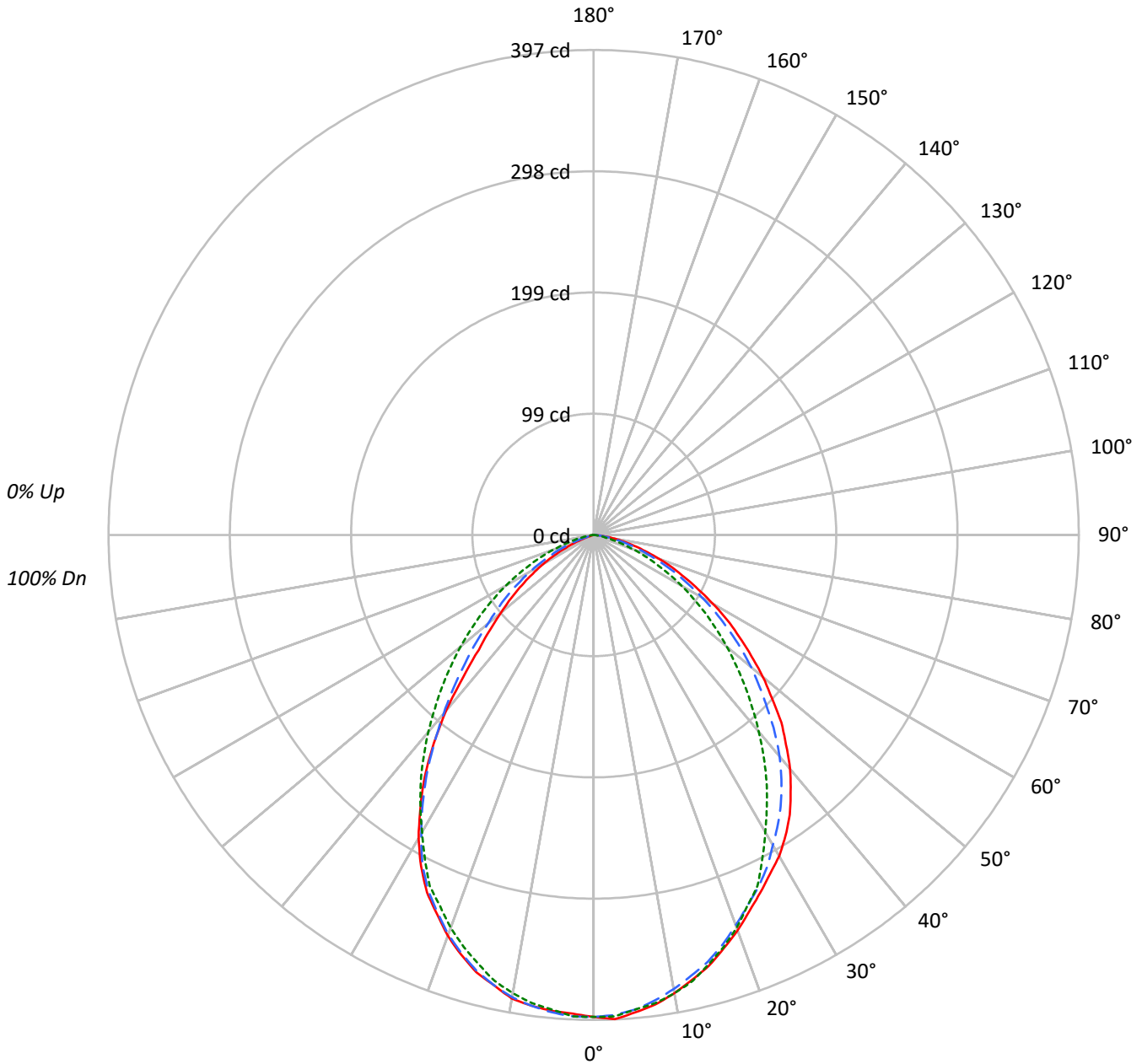
Lumens per Lamp: N/A
Luminaire Lumens: 753.8 lumens
Efficiency: N/A
Efficacy: 71.8 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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										
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	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88	88	88	88	88	88		
	2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77	77	77	77	77	77		
	3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67	67	67	67	67	67		
	4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59	59	59	59	59	59		
	5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52	52	52	52	52	52		
	6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46	46	46	46	46	46		
	7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42	42	42	42	42	42		
	8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38	38	38	38	38	38		
	9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34	34	34	34	34	34		
	10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32	32	32	32	32	32		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	21627	21627	21627	21627	21627
5°	21588	21462	21462	21588	21522
10°	21203	21014	21203	21392	21454
15°	20715	20522	20647	20971	21039
20°	20098	19835	19963	20296	20366
25°	19531	19259	19187	19392	19531
30°	19218	18566	17775	17851	18136
35°	18718	17882	16510	15901	16128
40°	17898	16925	15050	13668	13425
45°	16839	15599	13575	11544	10311
50°	15420	14353	12119	9603	8435
55°	13906	12826	10647	8153	6843
60°	12346	11216	9100	6611	5241
65°	10624	9586	7381	4864	3243
70°	9120	7838	5466	2741	1282
75°	7223	6015	3622	720	0
80°	5398	4293	1799	0	0
85°	2830	2139	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 16839 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	37.0	4.9
10°-20°	102.7	13.6
20°-30°	146.3	19.4
30°-40°	157.3	20.9
40°-50°	135.6	18.0
50°-60°	98.3	13.0
60°-70°	55.4	7.4
70°-80°	18.8	2.5
80°-90°	2.4	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°	286.0	37.9
0°-40°	443.3	58.8
0°-60°	677.1	89.8
0°-90°	753.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	753.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	394	394	394	394	394	
5°	392	390	390	392	391	37
15°	365	362	364	370	371	103
25°	323	318	317	321	323	149
35°	280	267	247	238	241	174
45°	217	201	175	149	133	166
55°	146	134	111	85	72	130
65°	82	74	57	38	25	82
75°	34	28	17	3	0	37
85°	4	3	0	0	0	7
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°	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5
2.5°	396.8	393.4	392.3	393.4	393.4	393.4	393.4	393.4	393.4	392.3	393.4
5°	392.3	388.9	388.9	388.9	388.9	388.9	387.7	388.9	388.9	388.9	390.0
7.5°	387.7	383.2	384.3	383.2	384.3	383.2	383.2	384.3	383.2	384.3	384.3
10°	380.9	377.5	377.5	377.5	377.5	377.5	377.5	377.5	377.5	377.5	377.5
12.5°	372.9	369.5	369.5	369.5	369.5	369.5	369.5	369.5	370.7	369.5	369.5
15°	365.0	360.4	361.6	360.4	360.4	360.4	360.4	360.4	360.4	360.4	361.6
17.5°	354.7	351.3	351.3	351.3	351.3	351.3	351.3	350.2	351.3	351.3	351.3
20°	344.5	341.1	341.1	340.0	341.1	340.0	340.0	340.0	341.1	340.0	340.0
22.5°	333.1	329.7	330.9	329.7	329.7	329.7	329.7	329.7	328.6	329.7	328.6
25°	322.9	321.8	320.6	321.8	320.6	320.6	320.6	319.5	319.5	319.5	318.4
27.5°	312.7	310.4	310.4	310.4	310.4	309.3	309.3	309.3	308.1	307.0	307.0
30°	303.6	300.2	300.2	300.2	299.0	299.0	297.9	297.9	295.6	294.5	293.3
32.5°	292.2	289.9	288.8	288.8	287.7	287.7	286.5	286.5	284.3	283.1	280.8
35°	279.7	278.6	278.6	277.4	276.3	275.2	274.0	272.9	271.7	269.5	267.2
37.5°	264.9	263.8	262.6	262.6	261.5	260.4	260.4	258.1	257.0	254.7	252.4
40°	250.1	247.9	247.9	246.7	245.6	244.5	244.5	242.2	241.0	238.8	236.5
42.5°	233.1	230.8	230.8	229.7	229.7	229.7	228.5	226.3	224.0	221.7	219.4
45°	217.2	214.9	214.9	212.6	212.6	211.5	210.3	209.2	206.9	204.7	201.2
47.5°	197.8	196.7	196.7	195.6	194.4	193.3	193.3	192.2	189.9	186.5	184.2
50°	180.8	179.6	179.6	178.5	177.4	176.2	175.1	174.0	172.8	170.6	168.3
52.5°	162.6	162.6	161.5	160.3	160.3	159.2	158.0	156.9	154.6	152.4	151.2
55°	145.5	144.4	144.4	143.3	143.3	142.1	141.0	139.9	138.7	136.4	134.2
57.5°	129.6	127.3	127.3	126.2	126.2	126.2	125.1	122.8	121.7	119.4	118.2
60°	112.6	111.4	111.4	111.4	110.3	109.2	109.2	106.9	105.7	104.6	102.3
62.5°	96.6	95.5	95.5	95.5	94.4	94.4	93.2	92.1	91.0	89.8	87.5
65°	81.9	81.9	81.9	80.7	80.7	79.6	78.5	78.5	77.3	76.2	73.9
67.5°	69.4	68.2	68.2	68.2	67.1	67.1	65.9	64.8	63.7	62.5	60.3
70°	56.9	55.7	55.7	54.6	54.6	54.6	54.6	53.4	51.2	51.2	48.9
72.5°	44.3	44.3	44.3	43.2	43.2	43.2	42.1	42.1	40.9	39.8	38.7
75°	34.1	34.1	34.1	33.0	33.0	33.0	31.8	31.8	30.7	29.6	28.4
77.5°	25.0	25.0	25.0	23.9	23.9	23.9	22.7	22.7	21.6	21.6	20.5
80°	17.1	17.1	17.1	15.9	15.9	15.9	15.9	14.8	14.8	13.6	13.6
82.5°	10.2	10.2	10.2	10.2	9.1	9.1	9.1	9.1	9.1	8.0	8.0
85°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4
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°	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5
2.5°	393.4	393.4	393.4	393.4	393.4	393.4	393.4	393.4	393.4	394.5	393.4
5°	390.0	390.0	390.0	390.0	390.0	390.0	391.1	390.0	391.1	390.0	391.1
7.5°	384.3	384.3	385.4	385.4	384.3	385.4	385.4	385.4	385.4	386.6	386.6
10°	377.5	378.6	378.6	379.8	379.8	379.8	379.8	380.9	380.9	380.9	380.9
12.5°	370.7	370.7	370.7	370.7	371.8	370.7	371.8	371.8	372.9	374.1	372.9
15°	360.4	361.6	361.6	361.6	361.6	361.6	362.7	363.8	363.8	363.8	365.0
17.5°	351.3	351.3	351.3	352.5	351.3	352.5	352.5	352.5	353.6	353.6	354.7
20°	340.0	338.8	341.1	340.0	340.0	341.1	341.1	341.1	342.2	342.2	342.2
22.5°	327.5	328.6	327.5	327.5	328.6	328.6	328.6	327.5	328.6	328.6	329.7
25°	317.2	317.2	317.2	317.2	317.2	317.2	317.2	316.1	317.2	317.2	317.2
27.5°	305.9	303.6	303.6	302.4	302.4	301.3	300.2	300.2	300.2	299.0	300.2
30°	292.2	289.9	288.8	287.7	286.5	286.5	284.3	283.1	282.0	280.8	279.7
32.5°	278.6	276.3	275.2	274.0	271.7	270.6	268.3	267.2	266.1	263.8	261.5
35°	266.1	262.6	260.4	258.1	257.0	255.8	253.6	251.3	249.0	246.7	244.5
37.5°	249.0	246.7	244.5	242.2	241.0	239.9	237.6	233.1	230.8	228.5	226.3
40°	234.2	230.8	228.5	225.1	224.0	221.7	219.4	216.0	212.6	210.3	208.1
42.5°	216.0	213.8	211.5	208.1	206.9	204.7	201.2	199.0	196.7	192.2	189.9
45°	199.0	196.7	194.4	191.0	188.7	187.6	185.3	181.9	178.5	175.1	172.8
47.5°	181.9	179.6	176.2	174.0	171.7	170.6	168.3	164.9	161.5	158.0	155.8
50°	164.9	162.6	160.3	155.8	155.8	153.5	151.2	147.8	145.5	142.1	138.7
52.5°	148.9	145.5	143.3	139.9	139.9	138.7	135.3	131.9	129.6	126.2	123.9
55°	131.9	129.6	127.3	125.1	122.8	121.7	120.5	117.1	113.7	111.4	108.0
57.5°	116.0	112.6	111.4	109.2	108.0	106.9	104.6	101.2	98.9	96.6	94.4
60°	101.2	98.9	95.5	94.4	93.2	92.1	89.8	87.5	85.3	83.0	80.7
62.5°	86.4	84.1	81.9	79.6	78.5	77.3	76.2	73.9	71.6	69.4	67.1
65°	71.6	70.5	68.2	67.1	65.9	64.8	62.5	60.3	59.1	56.9	54.6
67.5°	59.1	58.0	55.7	54.6	53.4	53.4	50.0	48.9	46.6	45.5	43.2
70°	47.8	46.6	44.3	43.2	42.1	40.9	39.8	38.7	36.4	34.1	33.0
72.5°	37.5	35.2	34.1	33.0	31.8	31.8	29.6	28.4	26.2	25.0	22.7
75°	27.3	26.2	25.0	23.9	23.9	22.7	21.6	20.5	18.2	17.1	15.9
77.5°	19.3	18.2	17.1	15.9	15.9	14.8	13.6	12.5	11.4	10.2	9.1
80°	12.5	11.4	11.4	10.2	9.1	9.1	8.0	6.8	5.7	5.7	4.5
82.5°	6.8	6.8	5.7	5.7	4.5	4.5	3.4	3.4	2.3	2.3	1.1
85°	3.4	2.3	2.3	2.3	2.3	1.1	1.1	1.1	0.0	0.0	0.0
87.5°	1.1	1.1	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°	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5
2.5°	393.4	393.4	393.4	393.4	393.4	393.4	393.4	393.4	394.5	393.4	393.4
5°	391.1	391.1	392.3	391.1	392.3	392.3	391.1	391.1	392.3	393.4	392.3
7.5°	386.6	386.6	387.7	387.7	387.7	387.7	387.7	388.9	388.9	390.0	390.0
10°	382.0	382.0	382.0	382.0	383.2	383.2	384.3	384.3	384.3	384.3	384.3
12.5°	374.1	375.2	375.2	375.2	375.2	376.3	376.3	377.5	377.5	377.5	378.6
15°	365.0	366.1	367.3	367.3	366.1	367.3	368.4	368.4	369.5	369.5	369.5
17.5°	354.7	355.9	355.9	357.0	355.9	358.2	358.2	359.3	359.3	360.4	360.4
20°	343.4	344.5	344.5	344.5	345.6	345.6	346.8	346.8	347.9	347.9	347.9
22.5°	329.7	330.9	330.9	330.9	330.9	332.0	332.0	333.1	334.3	335.4	334.3
25°	317.2	318.4	319.5	318.4	319.5	319.5	319.5	320.6	320.6	321.8	320.6
27.5°	300.2	300.2	300.2	301.3	302.4	302.4	302.4	303.6	303.6	303.6	304.7
30°	279.7	278.6	279.7	279.7	279.7	279.7	282.0	282.0	282.0	283.1	284.3
32.5°	260.4	260.4	260.4	259.2	259.2	259.2	259.2	260.4	260.4	261.5	262.6
35°	242.2	241.0	238.8	238.8	238.8	237.6	236.5	236.5	237.6	237.6	237.6
37.5°	222.9	221.7	220.6	218.3	218.3	216.0	214.9	213.8	213.8	212.6	212.6
40°	204.7	202.4	200.1	200.1	197.8	196.7	194.4	193.3	191.0	188.7	188.7
42.5°	186.5	184.2	181.9	180.8	178.5	177.4	174.0	171.7	169.4	168.3	166.0
45°	169.4	167.1	163.7	162.6	160.3	158.0	155.8	152.4	148.9	146.7	145.5
47.5°	152.4	150.1	146.7	144.4	143.3	139.9	137.6	134.2	130.8	127.3	123.9
50°	136.4	133.0	129.6	127.3	126.2	122.8	120.5	117.1	112.6	111.4	108.0
52.5°	120.5	117.1	113.7	112.6	111.4	108.0	104.6	101.2	98.9	95.5	93.2
55°	104.6	102.3	98.9	97.8	96.6	93.2	89.8	87.5	85.3	81.9	79.6
57.5°	91.0	88.7	85.3	84.1	83.0	79.6	77.3	73.9	71.6	69.4	67.1
60°	78.5	75.0	72.8	71.6	70.5	67.1	64.8	62.5	60.3	58.0	54.6
62.5°	64.8	62.5	60.3	59.1	56.9	55.7	52.3	51.2	47.8	46.6	44.3
65°	52.3	50.0	47.8	47.8	46.6	43.2	42.1	39.8	37.5	35.2	34.1
67.5°	42.1	39.8	37.5	36.4	35.2	33.0	31.8	29.6	27.3	26.2	23.9
70°	31.8	29.6	27.3	26.2	25.0	23.9	21.6	19.3	17.1	15.9	13.6
72.5°	21.6	19.3	18.2	18.2	17.1	14.8	12.5	11.4	9.1	8.0	6.8
75°	13.6	11.4	10.2	9.1	9.1	8.0	5.7	4.5	3.4	2.3	1.1
77.5°	8.0	6.8	5.7	4.5	4.5	3.4	2.3	1.1	1.1	0.0	0.0
80°	3.4	2.3	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.1	1.1	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: P644154

CATALOG NUMBER: ML5615LSWW9FS1E - 692SC WW - 900LM - 4000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	394.5	394.5	394.5	394.5	394.5	394.5	394.5	394.5
2.5°	393.4	393.4	393.4	393.4	392.3	392.3	392.3	392.3
5°	392.3	392.3	392.3	392.3	391.1	391.1	392.3	391.1
7.5°	390.0	390.0	388.9	388.9	388.9	388.9	388.9	388.9
10°	385.4	385.4	385.4	384.3	385.4	385.4	384.3	385.4
12.5°	378.6	378.6	378.6	378.6	377.5	377.5	378.6	377.5
15°	370.7	370.7	370.7	370.7	370.7	369.5	370.7	370.7
17.5°	361.6	361.6	360.4	360.4	360.4	361.6	361.6	360.4
20°	349.1	349.1	349.1	349.1	349.1	349.1	349.1	349.1
22.5°	335.4	335.4	335.4	335.4	335.4	335.4	335.4	335.4
25°	321.8	321.8	321.8	321.8	321.8	321.8	321.8	322.9
27.5°	304.7	304.7	304.7	304.7	304.7	303.6	303.6	305.9
30°	284.3	285.4	285.4	285.4	285.4	285.4	285.4	286.5
32.5°	263.8	263.8	263.8	264.9	263.8	264.9	263.8	263.8
35°	239.9	239.9	239.9	239.9	239.9	241.0	241.0	241.0
37.5°	212.6	213.8	213.8	214.9	214.9	214.9	216.0	214.9
40°	187.6	187.6	187.6	186.5	187.6	186.5	187.6	187.6
42.5°	163.7	161.5	161.5	160.3	160.3	159.2	158.0	158.0
45°	142.1	138.7	138.7	137.6	136.4	134.2	133.0	133.0
47.5°	121.7	120.5	119.4	118.2	117.1	114.8	113.7	114.8
50°	104.6	103.5	102.3	102.3	101.2	100.1	98.9	98.9
52.5°	91.0	88.7	87.5	87.5	86.4	85.3	85.3	85.3
55°	77.3	75.0	75.0	75.0	73.9	72.8	72.8	71.6
57.5°	64.8	62.5	62.5	61.4	60.3	60.3	60.3	59.1
60°	53.4	51.2	50.0	50.0	48.9	47.8	47.8	47.8
62.5°	42.1	40.9	38.7	38.7	37.5	36.4	35.2	36.4
65°	31.8	29.6	28.4	28.4	27.3	26.2	25.0	25.0
67.5°	21.6	20.5	19.3	19.3	17.1	17.1	15.9	15.9
70°	12.5	11.4	11.4	10.2	9.1	9.1	8.0	8.0
72.5°	5.7	4.5	4.5	3.4	3.4	2.3	2.3	2.3
75°	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.1	1.1	0.0	0.0
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)