

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: P644155

Luminaire Tested: ML5615LSWW9FS1E - 692SC WW - 900LM - 5000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644155
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 - 5000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

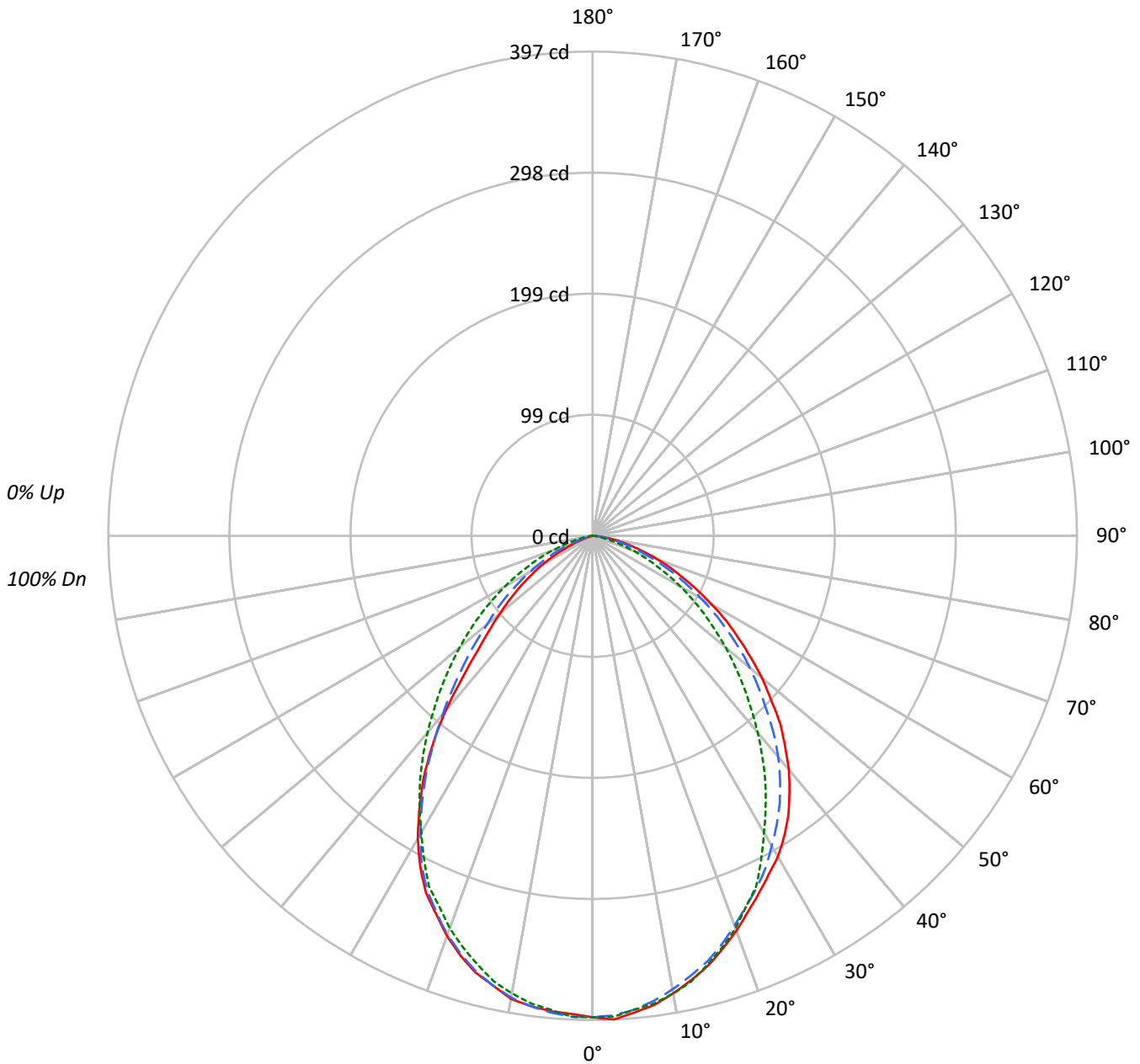
Lumens per Lamp: N/A
Luminaire Lumens: 754.1 lumens
Efficiency: N/A
Efficacy: 71.8 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

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					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°	21638	21638	21638	21638	21638
5°	21594	21467	21467	21594	21533
10°	21209	21019	21209	21404	21465
15°	20721	20528	20658	20982	21044
20°	20103	19841	19975	20308	20372
25°	19537	19265	19193	19404	19537
30°	19224	18579	17781	17857	18142
35°	18725	17889	16517	15908	16135
40°	17905	16932	15057	13676	13432
45°	16839	15606	13583	11552	10319
50°	15428	14353	12128	9603	8443
55°	13916	12826	10657	8153	6853
60°	12346	11227	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°	157.4	20.9
40°-50°	135.7	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°	286.1	37.9
0°-40°	443.5	58.8
0°-60°	677.4	89.8
0°-90°	754.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	754.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	395	395	395	395	395	
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	167
55°	146	134	112	85	72	131
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°	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
2.5°	397.0	393.6	392.4	393.6	393.6	393.6	393.6	393.6	393.6	392.4	393.6
5°	392.4	389.0	389.0	389.0	389.0	389.0	387.9	389.0	389.0	389.0	390.1
7.5°	387.9	383.3	384.5	383.3	384.5	383.3	383.3	384.5	383.3	384.5	384.5
10°	381.0	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6	377.6
12.5°	373.1	369.7	369.7	369.7	369.7	369.7	369.7	369.7	370.8	369.7	369.7
15°	365.1	360.6	361.7	360.6	360.6	360.6	360.6	360.6	360.6	360.6	361.7
17.5°	354.9	351.5	351.5	351.5	351.5	351.5	351.5	350.3	351.5	351.5	351.5
20°	344.6	341.2	341.2	340.1	341.2	340.1	340.1	340.1	341.2	340.1	340.1
22.5°	333.3	329.9	331.0	329.9	329.9	329.9	329.9	329.9	328.7	329.9	328.7
25°	323.0	321.9	320.8	321.9	320.8	320.8	320.8	319.6	319.6	319.6	318.5
27.5°	312.8	310.5	310.5	310.5	310.5	309.4	309.4	309.4	308.2	307.1	307.1
30°	303.7	300.3	300.3	300.3	299.1	299.1	298.0	298.0	295.7	294.6	293.5
32.5°	292.3	290.0	288.9	288.9	287.8	287.8	286.6	286.6	284.4	283.2	280.9
35°	279.8	278.7	278.7	277.5	276.4	275.3	274.1	273.0	271.8	269.6	267.3
37.5°	265.0	263.9	262.7	262.7	261.6	260.5	260.5	258.2	257.1	254.8	252.5
40°	250.2	248.0	248.0	246.8	245.7	244.5	244.5	242.3	241.1	238.9	236.6
42.5°	233.2	230.9	230.9	229.8	229.8	229.8	228.6	226.3	224.1	221.8	219.5
45°	217.2	215.0	215.0	212.7	212.7	211.6	210.4	209.3	207.0	204.7	201.3
47.5°	197.9	196.8	196.8	195.6	194.5	193.4	193.4	192.2	190.0	186.5	184.3
50°	180.9	179.7	179.7	178.6	177.4	176.3	175.2	174.0	172.9	170.6	168.3
52.5°	162.7	162.7	161.5	160.4	160.4	159.2	158.1	157.0	154.7	152.4	151.3
55°	145.6	144.5	144.5	143.3	143.3	142.2	141.0	139.9	138.8	136.5	134.2
57.5°	129.7	127.4	127.4	126.3	126.3	126.3	125.1	122.8	121.7	119.4	118.3
60°	112.6	111.5	111.5	111.5	110.3	109.2	109.2	106.9	105.8	104.6	102.4
62.5°	96.7	95.5	95.5	95.5	94.4	94.4	93.3	92.1	91.0	89.9	87.6
65°	81.9	81.9	81.9	80.8	80.8	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	66.0	64.8	63.7	62.6	60.3
70°	56.9	55.7	55.7	54.6	54.6	54.6	54.6	53.5	51.2	51.2	48.9
72.5°	44.4	44.4	44.4	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°	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
2.5°	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	394.7	393.6
5°	390.1	390.1	390.1	390.1	390.1	390.1	391.3	390.1	391.3	390.1	391.3
7.5°	384.5	384.5	385.6	385.6	384.5	385.6	385.6	385.6	385.6	386.7	386.7
10°	377.6	378.8	378.8	379.9	379.9	379.9	379.9	381.0	381.0	381.0	381.0
12.5°	370.8	370.8	370.8	370.8	371.9	370.8	371.9	371.9	373.1	374.2	373.1
15°	360.6	361.7	361.7	361.7	361.7	361.7	362.8	364.0	364.0	364.0	365.1
17.5°	351.5	351.5	351.5	352.6	351.5	352.6	352.6	352.6	353.7	353.7	354.9
20°	340.1	339.0	341.2	340.1	340.1	341.2	341.2	341.2	342.4	342.4	342.4
22.5°	327.6	328.7	327.6	327.6	328.7	328.7	328.7	327.6	328.7	328.7	329.9
25°	317.3	317.3	317.3	317.3	317.3	317.3	317.3	316.2	317.3	317.3	317.3
27.5°	306.0	303.7	303.7	302.6	302.6	301.4	300.3	300.3	300.3	299.1	300.3
30°	292.3	290.0	288.9	287.8	286.6	286.6	284.4	283.2	282.1	280.9	279.8
32.5°	278.7	276.4	275.3	274.1	271.8	270.7	268.4	267.3	266.2	263.9	261.6
35°	266.2	262.7	260.5	258.2	257.1	255.9	253.6	251.4	249.1	246.8	244.5
37.5°	249.1	246.8	244.5	242.3	241.1	240.0	237.7	233.2	230.9	228.6	226.3
40°	234.3	230.9	228.6	225.2	224.1	221.8	219.5	216.1	212.7	210.4	208.1
42.5°	216.1	213.8	211.6	208.1	207.0	204.7	201.3	199.1	196.8	192.2	190.0
45°	199.1	196.8	194.5	191.1	188.8	187.7	185.4	182.0	178.6	175.2	172.9
47.5°	182.0	179.7	176.3	174.0	171.8	170.6	168.3	164.9	161.5	158.1	155.8
50°	164.9	162.7	160.4	155.8	155.8	153.6	151.3	147.9	145.6	142.2	138.8
52.5°	149.0	145.6	143.3	139.9	139.9	138.8	135.4	131.9	129.7	126.3	124.0
55°	131.9	129.7	127.4	125.1	122.8	121.7	120.6	117.2	113.7	111.5	108.1
57.5°	116.0	112.6	111.5	109.2	108.1	106.9	104.6	101.2	99.0	96.7	94.4
60°	101.2	99.0	95.5	94.4	93.3	92.1	89.9	87.6	85.3	83.0	80.8
62.5°	86.4	84.2	81.9	79.6	78.5	77.3	76.2	73.9	71.7	69.4	67.1
65°	71.7	70.5	68.2	67.1	66.0	64.8	62.6	60.3	59.1	56.9	54.6
67.5°	59.1	58.0	55.7	54.6	53.5	53.5	50.0	48.9	46.6	45.5	43.2
70°	47.8	46.6	44.4	43.2	42.1	40.9	39.8	38.7	36.4	34.1	33.0
72.5°	37.5	35.3	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°	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
2.5°	393.6	393.6	393.6	393.6	393.6	393.6	393.6	393.6	394.7	393.6	393.6
5°	391.3	391.3	392.4	391.3	392.4	392.4	391.3	391.3	392.4	393.6	392.4
7.5°	386.7	386.7	387.9	387.9	387.9	387.9	387.9	389.0	389.0	390.1	390.1
10°	382.2	382.2	382.2	382.2	383.3	383.3	384.5	384.5	384.5	384.5	384.5
12.5°	374.2	375.4	375.4	375.4	375.4	376.5	376.5	377.6	377.6	377.6	378.8
15°	365.1	366.3	367.4	367.4	366.3	367.4	368.5	368.5	369.7	369.7	369.7
17.5°	354.9	356.0	356.0	357.2	356.0	358.3	358.3	359.4	359.4	360.6	360.6
20°	343.5	344.6	344.6	344.6	345.8	345.8	346.9	346.9	348.1	348.1	348.1
22.5°	329.9	331.0	331.0	331.0	331.0	332.1	332.1	333.3	334.4	335.5	334.4
25°	317.3	318.5	319.6	318.5	319.6	319.6	319.6	320.8	320.8	321.9	320.8
27.5°	300.3	300.3	300.3	301.4	302.6	302.6	302.6	303.7	303.7	303.7	304.8
30°	279.8	278.7	279.8	279.8	279.8	279.8	282.1	282.1	282.1	283.2	284.4
32.5°	260.5	260.5	260.5	259.3	259.3	259.3	259.3	260.5	260.5	261.6	262.7
35°	242.3	241.1	238.9	238.9	238.9	237.7	236.6	236.6	237.7	237.7	237.7
37.5°	222.9	221.8	220.7	218.4	218.4	216.1	215.0	213.8	213.8	212.7	212.7
40°	204.7	202.5	200.2	200.2	197.9	196.8	194.5	193.4	191.1	188.8	188.8
42.5°	186.5	184.3	182.0	180.9	178.6	177.4	174.0	171.8	169.5	168.3	166.1
45°	169.5	167.2	163.8	162.7	160.4	158.1	155.8	152.4	149.0	146.7	145.6
47.5°	152.4	150.1	146.7	144.5	143.3	139.9	137.6	134.2	130.8	127.4	124.0
50°	136.5	133.1	129.7	127.4	126.3	122.8	120.6	117.2	112.6	111.5	108.1
52.5°	120.6	117.2	113.7	112.6	111.5	108.1	104.6	101.2	99.0	95.5	93.3
55°	104.6	102.4	99.0	97.8	96.7	93.3	89.9	87.6	85.3	81.9	79.6
57.5°	91.0	88.7	85.3	84.2	83.0	79.6	77.3	73.9	71.7	69.4	67.1
60°	78.5	75.1	72.8	71.7	70.5	67.1	64.8	62.6	60.3	58.0	54.6
62.5°	64.8	62.6	60.3	59.1	56.9	55.7	52.3	51.2	47.8	46.6	44.4
65°	52.3	50.0	47.8	47.8	46.6	43.2	42.1	39.8	37.5	35.3	34.1
67.5°	42.1	39.8	37.5	36.4	35.3	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: P644155

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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
2.5°	393.6	393.6	393.6	393.6	392.4	392.4	392.4	392.4
5°	392.4	392.4	392.4	392.4	391.3	391.3	392.4	391.3
7.5°	390.1	390.1	389.0	389.0	389.0	389.0	389.0	389.0
10°	385.6	385.6	385.6	384.5	385.6	385.6	384.5	385.6
12.5°	378.8	378.8	378.8	378.8	377.6	377.6	378.8	377.6
15°	370.8	370.8	370.8	370.8	370.8	369.7	370.8	370.8
17.5°	361.7	361.7	360.6	360.6	360.6	361.7	361.7	360.6
20°	349.2	349.2	349.2	349.2	349.2	349.2	349.2	349.2
22.5°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
25°	321.9	321.9	321.9	321.9	321.9	321.9	321.9	323.0
27.5°	304.8	304.8	304.8	304.8	304.8	303.7	303.7	306.0
30°	284.4	285.5	285.5	285.5	285.5	285.5	285.5	286.6
32.5°	263.9	263.9	263.9	265.0	263.9	265.0	263.9	263.9
35°	240.0	240.0	240.0	240.0	240.0	241.1	241.1	241.1
37.5°	212.7	213.8	213.8	215.0	215.0	215.0	216.1	215.0
40°	187.7	187.7	187.7	186.5	187.7	186.5	187.7	187.7
42.5°	163.8	161.5	161.5	160.4	160.4	159.2	158.1	158.1
45°	142.2	138.8	138.8	137.6	136.5	134.2	133.1	133.1
47.5°	121.7	120.6	119.4	118.3	117.2	114.9	113.7	114.9
50°	104.6	103.5	102.4	102.4	101.2	100.1	99.0	99.0
52.5°	91.0	88.7	87.6	87.6	86.4	85.3	85.3	85.3
55°	77.3	75.1	75.1	75.1	73.9	72.8	72.8	71.7
57.5°	64.8	62.6	62.6	61.4	60.3	60.3	60.3	59.1
60°	53.5	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	35.3	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)