

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: P644127

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1200LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644127
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 - 1200LM - 3000K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 842.7 lumens
Efficiency: N/A
Efficacy: 62.9 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

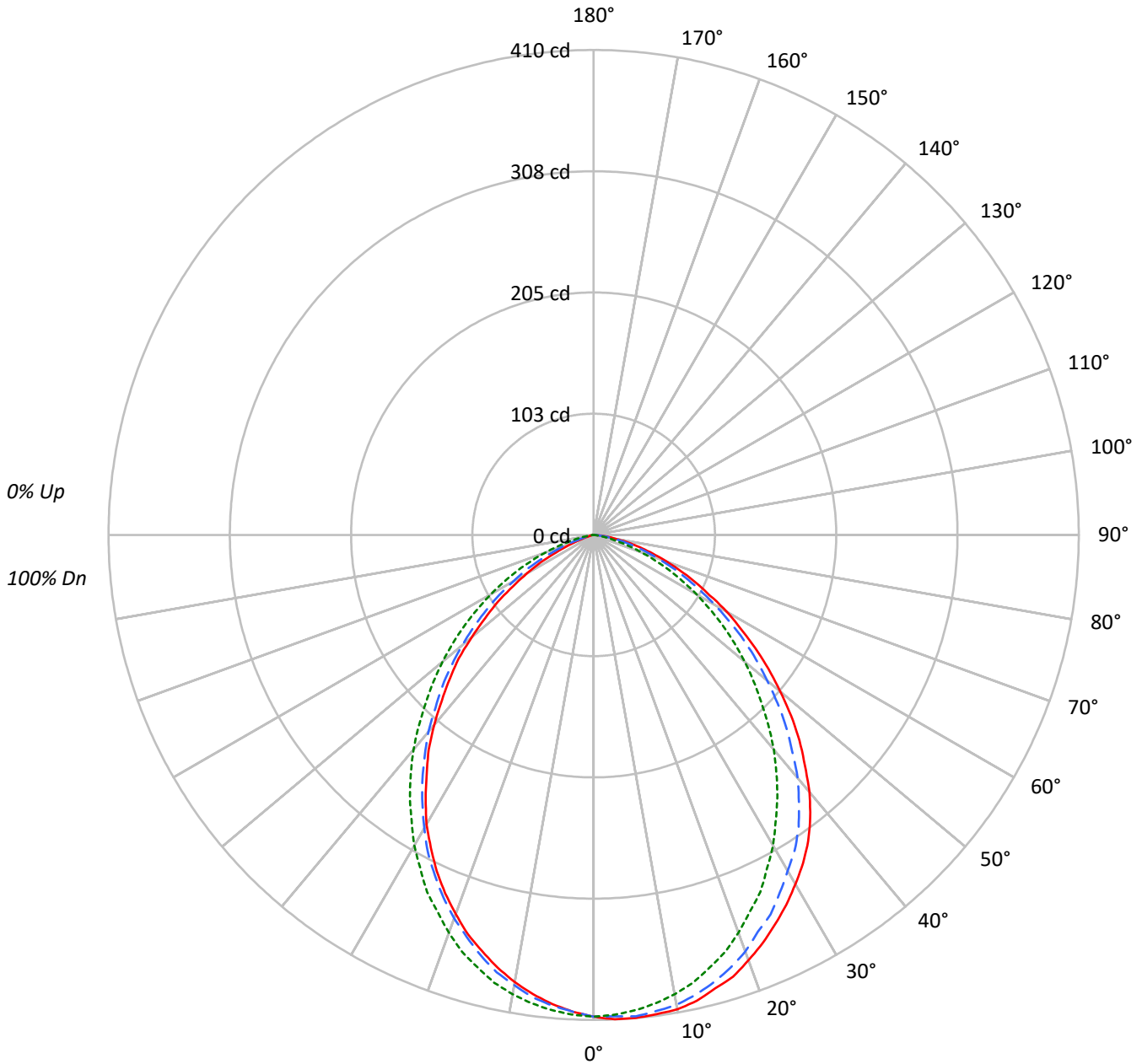
Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88																			
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76																			
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66																			
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57																			
5	80	69	60	54	78	68	60	54	66	59	54	64	58	53	62	57	53	51																			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45																			
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40																			
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36																			
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33																			
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30																			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	22328	22328	22328	22328	22328
5°	22557	22485	22199	21984	21913
10°	22673	22456	21949	21515	21370
15°	22526	22231	21493	20903	20675
20°	22320	21865	20873	20115	19888
25°	21957	21406	20148	19205	18969
30°	21579	20756	19193	18123	17876
35°	21161	20204	18116	16891	16456
40°	20302	19186	16946	15551	14992
45°	19064	17855	15536	14025	13319
50°	17535	16315	14208	12315	11428
55°	15923	14795	12683	10571	9452
60°	14264	12981	10986	8563	7138
65°	12323	11143	9119	6408	4553
70°	10434	9184	6876	3959	2084
75°	8536	7159	4406	1377	826
80°	6156	4925	2052	410	410
85°	3271	2453	818	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 19064 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.3	4.5
10°-20°	106.9	12.7
20°-30°	154.1	18.3
30°-40°	172.3	20.4
40°-50°	158.0	18.7
50°-60°	118.6	14.1
60°-70°	67.8	8.0
70°-80°	23.6	2.8
80°-90°	3.1	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°	299.3	35.5
0°-40°	471.6	56.0
0°-60°	748.2	88.8
0°-90°	842.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	842.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	407	407	407	407	407	
5°	410	409	403	400	398	39
15°	397	392	379	368	364	112
25°	363	354	333	318	314	167
35°	316	302	271	252	246	197
45°	246	230	200	181	172	189
55°	167	155	133	111	99	149
65°	95	86	70	49	35	95
75°	40	34	21	6	4	43
85°	5	4	1	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°	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3
2.5°	409.9	408.6	408.6	408.6	408.6	408.6	408.6	408.6	408.6	408.6	407.3
5°	409.9	409.9	409.9	409.9	409.9	409.9	409.9	408.6	408.6	408.6	408.6
7.5°	408.6	408.6	408.6	408.6	408.6	408.6	408.6	407.3	407.3	406.0	406.0
10°	407.3	407.3	407.3	406.0	406.0	406.0	406.0	406.0	404.7	404.7	403.4
12.5°	403.4	403.4	403.4	403.4	402.1	402.1	402.1	400.8	399.5	399.5	398.2
15°	396.9	398.2	398.2	396.9	396.9	396.9	396.9	395.6	394.3	393.0	391.7
17.5°	391.7	391.7	391.7	390.4	389.1	390.4	389.1	387.8	386.5	385.2	383.9
20°	382.6	382.6	381.3	381.3	381.3	381.3	380.0	378.7	377.4	376.1	374.8
22.5°	373.5	373.5	373.5	370.9	370.9	370.9	369.6	369.6	366.9	365.6	363.0
25°	363.0	363.0	363.0	361.7	360.4	359.1	360.4	357.8	356.5	353.9	353.9
27.5°	352.6	352.6	351.3	351.3	350.0	350.0	348.7	346.1	344.8	343.5	340.9
30°	340.9	340.9	339.6	339.6	338.3	337.0	337.0	334.4	333.1	330.5	327.9
32.5°	329.2	329.2	327.9	327.9	326.6	325.3	325.3	322.7	320.1	317.5	316.2
35°	316.2	316.2	314.9	314.9	313.6	312.3	311.0	308.4	307.1	303.2	301.9
37.5°	300.6	301.9	299.3	299.3	298.0	296.7	295.4	294.1	291.5	288.9	285.0
40°	283.7	282.4	282.4	281.1	279.8	279.8	278.5	275.9	274.6	270.7	268.1
42.5°	264.2	264.2	264.2	262.9	261.5	261.5	258.9	257.6	255.0	252.4	248.5
45°	245.9	245.9	244.6	244.6	242.0	242.0	240.7	238.1	236.8	232.9	230.3
47.5°	226.4	225.1	225.1	223.8	222.5	222.5	221.2	219.9	217.3	213.4	210.8
50°	205.6	205.6	205.6	204.3	203.0	203.0	201.7	199.1	197.8	195.2	191.3
52.5°	186.1	186.1	186.1	184.8	183.5	183.5	182.2	180.9	178.3	175.7	173.1
55°	166.6	166.6	166.6	165.3	165.3	162.7	162.7	161.4	158.8	156.1	154.8
57.5°	147.0	147.0	147.0	147.0	145.7	145.7	144.4	143.1	140.5	139.2	135.3
60°	130.1	128.8	128.8	127.5	127.5	126.2	124.9	123.6	122.3	119.7	118.4
62.5°	110.6	111.9	110.6	110.6	109.3	109.3	109.3	106.7	105.4	102.8	101.5
65°	95.0	95.0	95.0	95.0	92.4	92.4	92.4	89.8	88.5	88.5	85.9
67.5°	79.4	79.4	79.4	78.1	78.1	78.1	76.8	75.5	74.2	72.9	71.6
70°	65.1	65.1	65.1	63.8	63.8	62.5	62.5	61.2	59.9	59.9	57.3
72.5°	52.0	52.0	52.0	52.0	50.7	50.7	49.4	49.4	48.1	46.8	45.5
75°	40.3	40.3	40.3	39.0	39.0	39.0	37.7	37.7	36.4	35.1	33.8
77.5°	29.9	28.6	28.6	28.6	28.6	27.3	27.3	27.3	26.0	24.7	24.7
80°	19.5	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	10.4	10.4	10.4	9.1	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°	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3
2.5°	408.6	408.6	407.3	407.3	407.3	407.3	407.3	406.0	406.0	406.0	406.0
5°	408.6	407.3	406.0	406.0	406.0	406.0	404.7	404.7	404.7	403.4	403.4
7.5°	404.7	404.7	404.7	403.4	403.4	402.1	402.1	400.8	400.8	399.5	399.5
10°	402.1	400.8	400.8	399.5	399.5	398.2	398.2	395.6	394.3	394.3	393.0
12.5°	396.9	395.6	395.6	393.0	393.0	393.0	391.7	389.1	387.8	387.8	386.5
15°	390.4	389.1	387.8	385.2	385.2	383.9	382.6	381.3	380.0	378.7	377.4
17.5°	382.6	380.0	378.7	377.4	376.1	374.8	373.5	372.2	369.6	369.6	366.9
20°	373.5	370.9	369.6	366.9	365.6	365.6	363.0	360.4	359.1	357.8	355.2
22.5°	361.7	360.4	357.8	355.2	353.9	353.9	351.3	348.7	347.4	344.8	343.5
25°	351.3	347.4	346.1	343.5	342.2	342.2	339.6	337.0	334.4	333.1	330.5
27.5°	338.3	335.7	334.4	330.5	329.2	327.9	325.3	322.7	320.1	317.5	314.9
30°	325.3	322.7	320.1	316.2	316.2	313.6	311.0	307.1	305.8	303.2	299.3
32.5°	312.3	309.7	305.8	303.2	300.6	299.3	295.4	292.8	290.2	286.3	285.0
35°	298.0	294.1	291.5	287.6	286.3	283.7	281.1	277.2	274.6	270.7	266.8
37.5°	282.4	277.2	274.6	270.7	269.4	266.8	264.2	261.5	257.6	253.7	251.1
40°	265.5	260.2	256.3	253.7	251.1	248.5	247.2	242.0	239.4	236.8	234.2
42.5°	245.9	242.0	238.1	235.5	232.9	231.6	227.7	225.1	221.2	218.6	216.0
45°	227.7	223.8	219.9	216.0	214.7	213.4	210.8	206.9	203.0	200.4	197.8
47.5°	208.2	205.6	200.4	199.1	196.5	195.2	191.3	188.7	187.4	183.5	180.9
50°	188.7	186.1	183.5	179.6	178.3	177.0	174.4	171.8	169.2	166.6	164.0
52.5°	169.2	167.9	165.3	161.4	161.4	160.1	157.4	154.8	152.2	149.6	147.0
55°	152.2	149.6	147.0	144.4	143.1	141.8	139.2	137.9	135.3	132.7	130.1
57.5°	134.0	131.4	130.1	127.5	126.2	124.9	122.3	121.0	118.4	115.8	113.2
60°	117.1	114.5	113.2	110.6	109.3	109.3	106.7	104.1	102.8	100.2	97.6
62.5°	100.2	97.6	96.3	93.7	93.7	92.4	91.1	88.5	87.2	84.6	83.3
65°	84.6	83.3	80.7	79.4	78.1	76.8	75.5	74.2	71.6	70.3	67.7
67.5°	70.3	67.7	66.4	65.1	63.8	62.5	61.2	59.9	57.3	56.0	53.4
70°	56.0	54.7	53.4	52.0	50.7	50.7	48.1	46.8	44.2	42.9	40.3
72.5°	44.2	42.9	41.6	39.0	39.0	37.7	36.4	35.1	32.5	31.2	28.6
75°	32.5	32.5	29.9	28.6	28.6	27.3	26.0	24.7	23.4	20.8	19.5
77.5°	23.4	22.1	20.8	19.5	18.2	18.2	16.9	15.6	14.3	13.0	10.4
80°	15.6	14.3	13.0	11.7	11.7	10.4	9.1	9.1	7.8	6.5	5.2
82.5°	7.8	7.8	6.5	6.5	5.2	5.2	5.2	3.9	3.9	2.6	2.6
85°	3.9	2.6	2.6	2.6	2.6	2.6	1.3	1.3	1.3	1.3	0.0
87.5°	1.3	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°	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3
2.5°	406.0	404.7	406.0	406.0	404.7	404.7	404.7	404.7	403.4	404.7	403.4
5°	403.4	402.1	402.1	402.1	402.1	400.8	400.8	399.5	399.5	399.5	399.5
7.5°	398.2	396.9	396.9	395.6	395.6	395.6	395.6	394.3	394.3	393.0	393.0
10°	393.0	391.7	390.4	390.4	389.1	389.1	389.1	387.8	386.5	386.5	385.2
12.5°	383.9	383.9	382.6	382.6	381.3	381.3	380.0	378.7	378.7	377.4	377.4
15°	376.1	374.8	373.5	373.5	372.2	370.9	369.6	369.6	368.3	368.3	366.9
17.5°	365.6	363.0	363.0	361.7	360.4	360.4	359.1	357.8	356.5	356.5	356.5
20°	353.9	352.6	351.3	350.0	348.7	348.7	347.4	346.1	344.8	343.5	343.5
22.5°	340.9	339.6	338.3	337.0	337.0	335.7	334.4	333.1	331.8	330.5	330.5
25°	327.9	326.6	325.3	324.0	322.7	321.4	320.1	318.8	317.5	316.2	316.2
27.5°	313.6	311.0	309.7	308.4	307.1	305.8	305.8	303.2	303.2	301.9	300.6
30°	298.0	295.4	292.8	292.8	291.5	290.2	287.6	287.6	286.3	285.0	283.7
32.5°	281.1	279.8	277.2	277.2	274.6	273.3	272.0	270.7	269.4	268.1	268.1
35°	265.5	261.5	260.2	260.2	257.6	256.3	255.0	252.4	252.4	249.8	249.8
37.5°	248.5	245.9	244.6	242.0	240.7	239.4	238.1	235.5	234.2	232.9	231.6
40°	231.6	229.0	226.4	225.1	223.8	221.2	219.9	217.3	217.3	214.7	213.4
42.5°	213.4	210.8	208.2	206.9	205.6	203.0	201.7	199.1	197.8	196.5	195.2
45°	195.2	192.6	191.3	190.0	188.7	187.4	183.5	182.2	180.9	178.3	177.0
47.5°	178.3	175.7	173.1	173.1	170.5	169.2	166.6	164.0	162.7	160.1	158.8
50°	161.4	158.8	156.1	154.8	154.8	150.9	149.6	147.0	144.4	141.8	140.5
52.5°	144.4	141.8	139.2	137.9	136.6	134.0	131.4	130.1	127.5	124.9	123.6
55°	127.5	124.9	122.3	121.0	119.7	117.1	115.8	111.9	110.6	108.0	105.4
57.5°	111.9	109.3	106.7	105.4	104.1	101.5	98.9	96.3	95.0	92.4	89.8
60°	95.0	93.7	91.1	89.8	88.5	87.2	83.3	80.7	78.1	76.8	74.2
62.5°	80.7	78.1	75.5	74.2	72.9	71.6	69.0	66.4	65.1	61.2	58.6
65°	66.4	63.8	61.2	59.9	58.6	57.3	54.7	52.0	49.4	46.8	45.5
67.5°	50.7	49.4	46.8	46.8	45.5	42.9	40.3	39.0	36.4	35.1	32.5
70°	39.0	37.7	35.1	33.8	32.5	29.9	28.6	26.0	24.7	23.4	20.8
72.5°	27.3	26.0	23.4	22.1	20.8	19.5	16.9	15.6	14.3	13.0	11.7
75°	18.2	15.6	14.3	13.0	13.0	10.4	9.1	7.8	6.5	5.2	5.2
77.5°	10.4	9.1	6.5	6.5	6.5	5.2	3.9	3.9	2.6	2.6	2.6
80°	5.2	3.9	2.6	2.6	2.6	2.6	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.0	1.3	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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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	407.3	407.3	407.3	407.3	407.3	407.3	407.3	407.3
2.5°	403.4	403.4	403.4	403.4	403.4	403.4	403.4	403.4
5°	399.5	398.2	398.2	398.2	398.2	398.2	398.2	398.2
7.5°	393.0	393.0	391.7	393.0	391.7	391.7	391.7	391.7
10°	385.2	385.2	385.2	385.2	383.9	383.9	383.9	383.9
12.5°	377.4	376.1	376.1	376.1	374.8	376.1	374.8	374.8
15°	366.9	365.6	365.6	365.6	365.6	364.3	365.6	364.3
17.5°	355.2	355.2	353.9	355.2	353.9	353.9	353.9	353.9
20°	342.2	342.2	342.2	340.9	342.2	340.9	340.9	340.9
22.5°	329.2	329.2	327.9	327.9	327.9	327.9	327.9	327.9
25°	314.9	314.9	314.9	314.9	313.6	313.6	313.6	313.6
27.5°	300.6	299.3	299.3	299.3	298.0	299.3	298.0	298.0
30°	283.7	283.7	282.4	282.4	282.4	281.1	281.1	282.4
32.5°	265.5	265.5	265.5	265.5	264.2	264.2	264.2	264.2
35°	248.5	248.5	247.2	247.2	247.2	245.9	245.9	245.9
37.5°	230.3	230.3	229.0	229.0	229.0	227.7	227.7	229.0
40°	212.1	212.1	210.8	210.8	210.8	209.5	209.5	209.5
42.5°	193.9	192.6	192.6	191.3	191.3	191.3	190.0	190.0
45°	175.7	174.4	174.4	174.4	173.1	171.8	171.8	171.8
47.5°	157.4	156.1	154.8	154.8	153.5	153.5	153.5	154.8
50°	139.2	137.9	137.9	136.6	135.3	135.3	135.3	134.0
52.5°	121.0	119.7	119.7	118.4	118.4	117.1	115.8	115.8
55°	104.1	102.8	101.5	100.2	100.2	98.9	98.9	98.9
57.5°	87.2	85.9	84.6	84.6	83.3	83.3	82.0	80.7
60°	71.6	70.3	69.0	69.0	67.7	66.4	65.1	65.1
62.5°	57.3	56.0	54.7	53.4	52.0	50.7	49.4	50.7
65°	44.2	41.6	40.3	39.0	39.0	37.7	36.4	35.1
67.5°	31.2	29.9	28.6	27.3	26.0	24.7	23.4	23.4
70°	19.5	16.9	16.9	16.9	15.6	14.3	13.0	13.0
72.5°	10.4	9.1	7.8	7.8	6.5	6.5	6.5	6.5
75°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)