

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: P644132

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1500LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644132
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 - 1500LM - 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

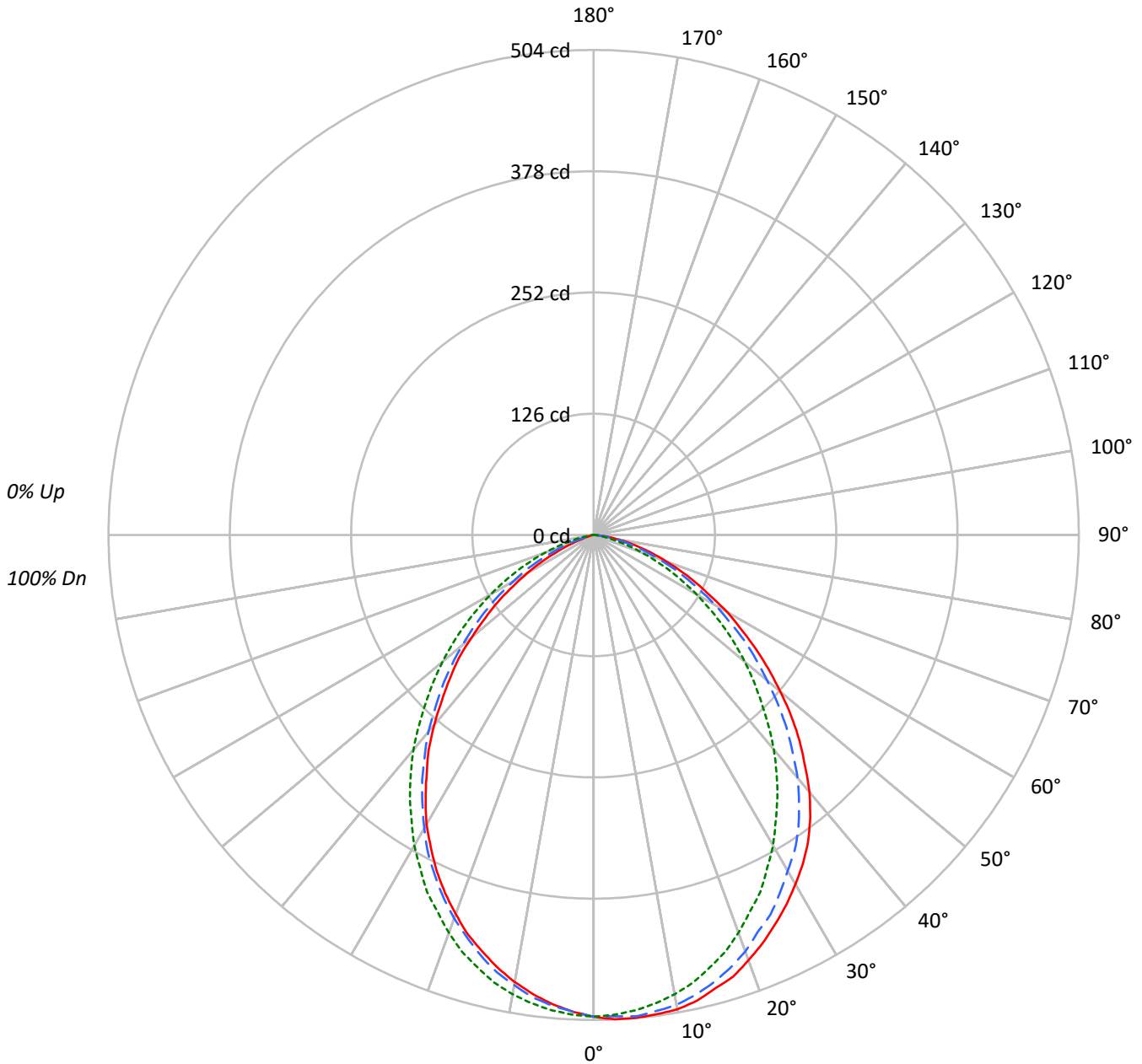
Lumens per Lamp: N/A
Luminaire Lumens: 1036.1 lumens
Efficiency: N/A
Efficacy: 60.6 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 17.1
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	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88	88	88	88	88	88		
	2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76	76	76	76	76	76		
	3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66	66	66	66	66	66		
	4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57	57	57	57	57	57		
	5	80	69	60	54	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	37	32	42	36	32	41	36	32	30	30	30	30	30	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	27448	27448	27448	27448	27448
5°	27729	27641	27289	27025	26937
10°	27872	27605	26981	26447	26269
15°	27690	27327	26419	25693	25420
20°	27437	26877	25663	24730	24450
25°	26996	26318	24770	23608	23318
30°	26529	25517	23592	22282	21978
35°	26013	24835	22272	20773	20238
40°	24961	23587	20839	19122	18435
45°	23444	21956	19103	17242	16374
50°	21560	20059	17466	15147	14055
55°	19574	18198	15598	12998	11622
60°	17542	15964	13508	10525	8771
65°	15151	13698	11207	7887	5604
70°	12823	11284	8463	4873	2565
75°	10506	8811	5422	1694	1017
80°	7577	6061	2526	505	505
85°	4026	3019	1006	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 23444 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.0	4.5
10°-20°	131.5	12.7
20°-30°	189.5	18.3
30°-40°	211.8	20.4
40°-50°	194.3	18.7
50°-60°	145.9	14.1
60°-70°	83.3	8.0
70°-80°	29.1	2.8
80°-90°	3.8	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°	368.0	35.5
0°-40°	579.8	56.0
0°-60°	919.9	88.8
0°-90°	1036.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1036.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	501	501	501	501	501	
5°	504	502	496	491	490	48
15°	488	482	466	453	448	138
25°	446	435	410	390	386	206
35°	389	371	333	310	302	242
45°	302	283	246	222	211	233
55°	205	190	163	136	122	183
65°	117	106	86	61	43	116
75°	50	42	26	8	5	53
85°	6	5	2	0	0	9
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°	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7
2.5°	503.9	502.3	502.3	502.3	502.3	502.3	502.3	502.3	502.3	502.3	500.7
5°	503.9	503.9	503.9	503.9	503.9	503.9	503.9	502.3	502.3	502.3	502.3
7.5°	502.3	502.3	502.3	502.3	502.3	502.3	502.3	500.7	500.7	499.1	499.1
10°	500.7	500.7	500.7	499.1	499.1	499.1	499.1	499.1	497.5	497.5	495.9
12.5°	495.9	495.9	495.9	495.9	494.3	494.3	494.3	492.7	491.1	491.1	489.5
15°	487.9	489.5	489.5	487.9	487.9	487.9	487.9	486.3	484.7	483.1	481.5
17.5°	481.5	481.5	481.5	479.9	478.3	479.9	478.3	476.7	475.1	473.5	471.9
20°	470.3	470.3	468.7	468.7	468.7	468.7	467.1	465.5	463.9	462.3	460.7
22.5°	459.1	459.1	459.1	455.9	455.9	455.9	454.3	454.3	451.1	449.5	446.3
25°	446.3	446.3	446.3	444.7	443.1	441.5	443.1	439.9	438.3	435.1	435.1
27.5°	433.5	433.5	431.9	431.9	430.3	430.3	428.7	425.5	423.9	422.3	419.1
30°	419.1	419.1	417.5	417.5	415.9	414.3	414.3	411.1	409.5	406.3	403.1
32.5°	404.7	404.7	403.1	403.1	401.5	399.9	399.9	396.7	393.5	390.3	388.7
35°	388.7	388.7	387.1	387.1	385.5	383.9	382.3	379.1	377.5	372.7	371.1
37.5°	369.5	371.1	367.9	367.9	366.3	364.7	363.1	361.5	358.3	355.1	350.4
40°	348.8	347.2	347.2	345.6	344.0	344.0	342.4	339.2	337.6	332.8	329.6
42.5°	324.8	324.8	324.8	323.2	321.6	321.6	318.4	316.8	313.6	310.4	305.6
45°	302.4	302.4	300.8	300.8	297.6	297.6	296.0	292.8	291.2	286.4	283.2
47.5°	278.4	276.8	276.8	275.2	273.6	273.6	272.0	270.4	267.2	262.4	259.2
50°	252.8	252.8	252.8	251.2	249.6	249.6	248.0	244.8	243.2	240.0	235.2
52.5°	228.8	228.8	228.8	227.2	225.6	225.6	224.0	222.4	219.2	216.0	212.8
55°	204.8	204.8	204.8	203.2	203.2	200.0	200.0	198.4	195.2	192.0	190.4
57.5°	180.8	180.8	180.8	180.8	179.2	179.2	177.6	176.0	172.8	171.2	166.4
60°	160.0	158.4	158.4	156.8	156.8	155.2	153.6	152.0	150.4	147.2	145.6
62.5°	136.0	137.6	136.0	136.0	134.4	134.4	134.4	131.2	129.6	126.4	124.8
65°	116.8	116.8	116.8	116.8	113.6	113.6	113.6	110.4	108.8	108.8	105.6
67.5°	97.6	97.6	97.6	96.0	96.0	96.0	94.4	92.8	91.2	89.6	88.0
70°	80.0	80.0	80.0	78.4	78.4	76.8	76.8	75.2	73.6	73.6	70.4
72.5°	64.0	64.0	64.0	64.0	62.4	62.4	60.8	60.8	59.2	57.6	56.0
75°	49.6	49.6	49.6	48.0	48.0	48.0	46.4	46.4	44.8	43.2	41.6
77.5°	36.8	35.2	35.2	35.2	35.2	33.6	33.6	33.6	32.0	30.4	30.4
80°	24.0	24.0	24.0	24.0	24.0	22.4	22.4	22.4	20.8	20.8	19.2
82.5°	14.4	14.4	14.4	14.4	14.4	12.8	12.8	12.8	11.2	11.2	11.2
85°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	4.8	4.8	4.8
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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°	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7
2.5°	502.3	502.3	500.7	500.7	500.7	500.7	500.7	499.1	499.1	499.1	499.1
5°	502.3	500.7	499.1	499.1	499.1	499.1	497.5	497.5	497.5	495.9	495.9
7.5°	497.5	497.5	497.5	495.9	495.9	494.3	494.3	492.7	492.7	491.1	491.1
10°	494.3	492.7	492.7	491.1	491.1	489.5	489.5	486.3	484.7	484.7	483.1
12.5°	487.9	486.3	486.3	483.1	483.1	483.1	481.5	478.3	476.7	476.7	475.1
15°	479.9	478.3	476.7	473.5	473.5	471.9	470.3	468.7	467.1	465.5	463.9
17.5°	470.3	467.1	465.5	463.9	462.3	460.7	459.1	457.5	454.3	454.3	451.1
20°	459.1	455.9	454.3	451.1	449.5	449.5	446.3	443.1	441.5	439.9	436.7
22.5°	444.7	443.1	439.9	436.7	435.1	435.1	431.9	428.7	427.1	423.9	422.3
25°	431.9	427.1	425.5	422.3	420.7	420.7	417.5	414.3	411.1	409.5	406.3
27.5°	415.9	412.7	411.1	406.3	404.7	403.1	399.9	396.7	393.5	390.3	387.1
30°	399.9	396.7	393.5	388.7	388.7	385.5	382.3	377.5	375.9	372.7	367.9
32.5°	383.9	380.7	375.9	372.7	369.5	367.9	363.1	359.9	356.7	352.0	350.4
35°	366.3	361.5	358.3	353.5	352.0	348.8	345.6	340.8	337.6	332.8	328.0
37.5°	347.2	340.8	337.6	332.8	331.2	328.0	324.8	321.6	316.8	312.0	308.8
40°	326.4	320.0	315.2	312.0	308.8	305.6	304.0	297.6	294.4	291.2	288.0
42.5°	302.4	297.6	292.8	289.6	286.4	284.8	280.0	276.8	272.0	268.8	265.6
45°	280.0	275.2	270.4	265.6	264.0	262.4	259.2	254.4	249.6	246.4	243.2
47.5°	256.0	252.8	246.4	244.8	241.6	240.0	235.2	232.0	230.4	225.6	222.4
50°	232.0	228.8	225.6	220.8	219.2	217.6	214.4	211.2	208.0	204.8	201.6
52.5°	208.0	206.4	203.2	198.4	198.4	196.8	193.6	190.4	187.2	184.0	180.8
55°	187.2	184.0	180.8	177.6	176.0	174.4	171.2	169.6	166.4	163.2	160.0
57.5°	164.8	161.6	160.0	156.8	155.2	153.6	150.4	148.8	145.6	142.4	139.2
60°	144.0	140.8	139.2	136.0	134.4	134.4	131.2	128.0	126.4	123.2	120.0
62.5°	123.2	120.0	118.4	115.2	115.2	113.6	112.0	108.8	107.2	104.0	102.4
65°	104.0	102.4	99.2	97.6	96.0	94.4	92.8	91.2	88.0	86.4	83.2
67.5°	86.4	83.2	81.6	80.0	78.4	76.8	75.2	73.6	70.4	68.8	65.6
70°	68.8	67.2	65.6	64.0	62.4	62.4	59.2	57.6	54.4	52.8	49.6
72.5°	54.4	52.8	51.2	48.0	48.0	46.4	44.8	43.2	40.0	38.4	35.2
75°	40.0	40.0	36.8	35.2	35.2	33.6	32.0	30.4	28.8	25.6	24.0
77.5°	28.8	27.2	25.6	24.0	22.4	22.4	20.8	19.2	17.6	16.0	12.8
80°	19.2	17.6	16.0	14.4	14.4	12.8	11.2	11.2	9.6	8.0	6.4
82.5°	9.6	9.6	8.0	8.0	6.4	6.4	6.4	4.8	4.8	3.2	3.2
85°	4.8	3.2	3.2	3.2	3.2	3.2	1.6	1.6	1.6	1.6	0.0
87.5°	1.6	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°	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7
2.5°	499.1	497.5	499.1	499.1	497.5	497.5	497.5	497.5	495.9	497.5	495.9
5°	495.9	494.3	494.3	494.3	494.3	492.7	492.7	491.1	491.1	491.1	491.1
7.5°	489.5	487.9	487.9	486.3	486.3	486.3	486.3	484.7	484.7	483.1	483.1
10°	483.1	481.5	479.9	479.9	478.3	478.3	478.3	476.7	475.1	475.1	473.5
12.5°	471.9	471.9	470.3	470.3	468.7	468.7	467.1	465.5	465.5	463.9	463.9
15°	462.3	460.7	459.1	459.1	457.5	455.9	454.3	454.3	452.7	452.7	451.1
17.5°	449.5	446.3	446.3	444.7	443.1	443.1	441.5	439.9	438.3	438.3	438.3
20°	435.1	433.5	431.9	430.3	428.7	428.7	427.1	425.5	423.9	422.3	422.3
22.5°	419.1	417.5	415.9	414.3	414.3	412.7	411.1	409.5	407.9	406.3	406.3
25°	403.1	401.5	399.9	398.3	396.7	395.1	393.5	391.9	390.3	388.7	388.7
27.5°	385.5	382.3	380.7	379.1	377.5	375.9	375.9	372.7	372.7	371.1	369.5
30°	366.3	363.1	359.9	359.9	358.3	356.7	353.5	353.5	352.0	350.4	348.8
32.5°	345.6	344.0	340.8	340.8	337.6	336.0	334.4	332.8	331.2	329.6	329.6
35°	326.4	321.6	320.0	320.0	316.8	315.2	313.6	310.4	310.4	307.2	307.2
37.5°	305.6	302.4	300.8	297.6	296.0	294.4	292.8	289.6	288.0	286.4	284.8
40°	284.8	281.6	278.4	276.8	275.2	272.0	270.4	267.2	267.2	264.0	262.4
42.5°	262.4	259.2	256.0	254.4	252.8	249.6	248.0	244.8	243.2	241.6	240.0
45°	240.0	236.8	235.2	233.6	232.0	230.4	225.6	224.0	222.4	219.2	217.6
47.5°	219.2	216.0	212.8	212.8	209.6	208.0	204.8	201.6	200.0	196.8	195.2
50°	198.4	195.2	192.0	190.4	190.4	185.6	184.0	180.8	177.6	174.4	172.8
52.5°	177.6	174.4	171.2	169.6	168.0	164.8	161.6	160.0	156.8	153.6	152.0
55°	156.8	153.6	150.4	148.8	147.2	144.0	142.4	137.6	136.0	132.8	129.6
57.5°	137.6	134.4	131.2	129.6	128.0	124.8	121.6	118.4	116.8	113.6	110.4
60°	116.8	115.2	112.0	110.4	108.8	107.2	102.4	99.2	96.0	94.4	91.2
62.5°	99.2	96.0	92.8	91.2	89.6	88.0	84.8	81.6	80.0	75.2	72.0
65°	81.6	78.4	75.2	73.6	72.0	70.4	67.2	64.0	60.8	57.6	56.0
67.5°	62.4	60.8	57.6	57.6	56.0	52.8	49.6	48.0	44.8	43.2	40.0
70°	48.0	46.4	43.2	41.6	40.0	36.8	35.2	32.0	30.4	28.8	25.6
72.5°	33.6	32.0	28.8	27.2	25.6	24.0	20.8	19.2	17.6	16.0	14.4
75°	22.4	19.2	17.6	16.0	16.0	12.8	11.2	9.6	8.0	6.4	6.4
77.5°	12.8	11.2	8.0	8.0	8.0	6.4	4.8	4.8	3.2	3.2	3.2
80°	6.4	4.8	3.2	3.2	3.2	3.2	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.0	1.6	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°	500.7	500.7	500.7	500.7	500.7	500.7	500.7	500.7
2.5°	495.9	495.9	495.9	495.9	495.9	495.9	495.9	495.9
5°	491.1	489.5	489.5	489.5	489.5	489.5	489.5	489.5
7.5°	483.1	483.1	481.5	483.1	481.5	481.5	481.5	481.5
10°	473.5	473.5	473.5	473.5	471.9	471.9	471.9	471.9
12.5°	463.9	462.3	462.3	462.3	460.7	462.3	460.7	460.7
15°	451.1	449.5	449.5	449.5	449.5	447.9	449.5	447.9
17.5°	436.7	436.7	435.1	436.7	435.1	435.1	435.1	435.1
20°	420.7	420.7	420.7	419.1	420.7	419.1	419.1	419.1
22.5°	404.7	404.7	403.1	403.1	403.1	403.1	403.1	403.1
25°	387.1	387.1	387.1	387.1	385.5	385.5	385.5	385.5
27.5°	369.5	367.9	367.9	367.9	366.3	367.9	366.3	366.3
30°	348.8	348.8	347.2	347.2	347.2	345.6	345.6	347.2
32.5°	326.4	326.4	326.4	326.4	324.8	324.8	324.8	324.8
35°	305.6	305.6	304.0	304.0	304.0	302.4	302.4	302.4
37.5°	283.2	283.2	281.6	281.6	281.6	280.0	280.0	281.6
40°	260.8	260.8	259.2	259.2	259.2	257.6	257.6	257.6
42.5°	238.4	236.8	236.8	235.2	235.2	235.2	233.6	233.6
45°	216.0	214.4	214.4	214.4	212.8	211.2	211.2	211.2
47.5°	193.6	192.0	190.4	190.4	188.8	188.8	188.8	190.4
50°	171.2	169.6	169.6	168.0	166.4	166.4	166.4	164.8
52.5°	148.8	147.2	147.2	145.6	145.6	144.0	142.4	142.4
55°	128.0	126.4	124.8	123.2	123.2	121.6	121.6	121.6
57.5°	107.2	105.6	104.0	104.0	102.4	102.4	100.8	99.2
60°	88.0	86.4	84.8	84.8	83.2	81.6	80.0	80.0
62.5°	70.4	68.8	67.2	65.6	64.0	62.4	60.8	62.4
65°	54.4	51.2	49.6	48.0	48.0	46.4	44.8	43.2
67.5°	38.4	36.8	35.2	33.6	32.0	30.4	28.8	28.8
70°	24.0	20.8	20.8	20.8	19.2	17.6	16.0	16.0
72.5°	12.8	11.2	9.6	9.6	8.0	8.0	8.0	8.0
75°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
77.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)