

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: P644096

Luminaire Tested: ML5615LSWW9FS1E - 592SC WW - 1200LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644096
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 - 2700K
Description: ML56 RR, WW OPTIC, 5" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

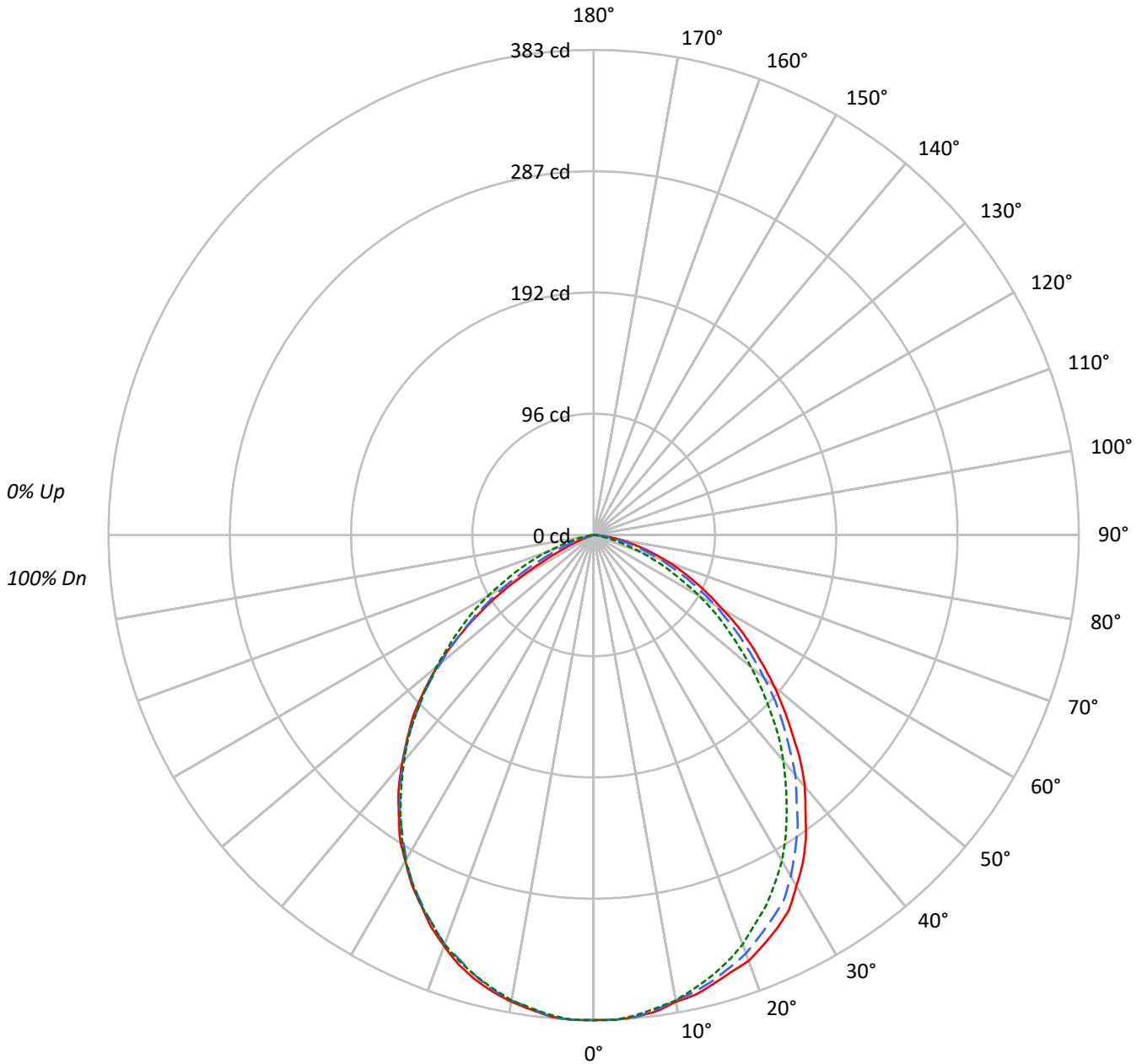
Lumens per Lamp: N/A
Luminaire Lumens: 820.0 lumens
Efficiency: N/A
Efficacy: 61.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.26
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

Input Watts (W): 13.4
Input Voltage (V): NR
Input Current (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				
RW	70	50	30	10	70	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	105	101	98	100	98	95	97	94	93	93	91	90	88		
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76		
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66		
4	87	76	68	62	85	75	68	62	72	66	61	70	65	60	68	63	60	58		
5	80	69	61	55	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	36	32	42	36	32	41	36	32	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	30258	30258	30258	30258	30258
5°	30271	30271	30176	30271	30271
10°	30011	29915	29915	29915	30011
15°	29985	29773	29462	29462	29675
20°	30075	29545	28907	28907	29016
25°	29858	29092	28099	27986	28099
30°	29178	28367	27100	26981	27100
35°	28159	27060	25605	25721	25846
40°	26721	25546	23990	24114	24248
45°	24717	23589	22026	22026	22451
50°	22843	21590	19883	19416	19736
55°	20892	19502	17589	16185	15841
60°	18567	17383	15172	12583	10389
65°	16550	15130	12291	8275	4969
70°	14610	12856	9048	4085	1454
75°	11956	10035	5399	1159	397
80°	9183	6910	2318	0	0
85°	4619	3442	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 24851 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.1	4.4
10°-20°	102.2	12.5
20°-30°	150.7	18.4
30°-40°	170.6	20.8
40°-50°	157.6	19.2
50°-60°	116.4	14.2
60°-70°	62.6	7.6
70°-80°	20.9	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°	289.1	35.3
0°-40°	459.7	56.1
0°-60°	733.7	89.5
0°-90°	820.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	820.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	383	383	383	383	383	
5°	382	382	381	382	382	36
15°	367	364	360	360	363	104
25°	343	334	323	321	323	158
35°	292	281	266	267	268	182
45°	221	211	197	197	201	171
55°	152	142	128	118	115	136
65°	89	81	66	44	27	88
75°	39	33	18	4	1	42
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°	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3
2.5°	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3
5°	382.0	382.0	380.8	382.0	382.0	382.0	382.0	380.8	382.0	382.0	382.0
7.5°	379.5	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2
10°	374.4	374.4	374.4	374.4	374.4	374.4	374.4	374.4	374.4	374.4	373.2
12.5°	371.9	370.7	370.7	370.7	370.7	370.7	370.7	369.4	370.7	369.4	369.4
15°	366.9	366.9	366.9	366.9	366.9	366.9	365.6	365.6	365.6	365.6	364.3
17.5°	361.8	361.8	363.1	363.1	361.8	361.8	361.8	360.5	359.3	359.3	358.0
20°	358.0	358.0	356.7	356.7	355.5	356.7	355.5	354.2	354.2	352.9	351.7
22.5°	350.4	350.4	350.4	350.4	350.4	349.1	349.1	347.9	346.6	345.4	342.8
25°	342.8	342.8	342.8	342.8	341.6	341.6	341.6	339.0	337.8	336.5	334.0
27.5°	334.0	332.7	332.7	332.7	331.4	331.4	330.2	328.9	327.6	326.4	325.1
30°	320.1	320.1	320.1	320.1	318.8	317.5	317.5	316.3	315.0	312.5	311.2
32.5°	307.4	307.4	306.1	304.9	304.9	304.9	303.6	302.3	299.8	298.5	296.0
35°	292.2	291.0	291.0	289.7	289.7	289.7	288.4	285.9	284.6	283.4	280.8
37.5°	274.5	275.8	274.5	274.5	273.2	272.0	270.7	269.5	268.2	265.7	263.1
40°	259.3	259.3	258.1	256.8	255.5	255.5	254.3	253.0	251.7	250.5	247.9
42.5°	241.6	241.6	240.4	240.4	239.1	239.1	236.6	235.3	234.0	232.8	229.0
45°	221.4	221.4	222.6	221.4	220.1	218.8	218.8	217.6	215.1	213.8	211.3
47.5°	203.7	204.9	203.7	202.4	202.4	201.1	201.1	198.6	198.6	196.1	194.8
50°	186.0	186.0	186.0	186.0	184.7	183.4	183.4	182.2	179.6	178.4	175.8
52.5°	168.2	168.2	168.2	168.2	167.0	167.0	165.7	164.5	163.2	160.7	158.1
55°	151.8	150.5	150.5	150.5	149.3	149.3	148.0	146.7	145.5	144.2	141.7
57.5°	135.4	134.1	134.1	132.8	132.8	131.6	131.6	130.3	129.0	126.5	125.2
60°	117.6	118.9	117.6	117.6	116.4	116.4	116.4	115.1	112.6	111.3	110.1
62.5°	102.5	103.7	102.5	101.2	101.2	101.2	101.2	98.7	97.4	96.1	94.9
65°	88.6	88.6	88.6	87.3	87.3	87.3	84.8	84.8	83.5	82.2	81.0
67.5°	75.9	74.6	74.6	74.6	73.4	73.4	72.1	72.1	69.6	69.6	67.0
70°	63.3	62.0	62.0	62.0	60.7	59.5	60.7	58.2	56.9	55.7	55.7
72.5°	50.6	50.6	49.3	49.3	49.3	48.1	48.1	46.8	45.5	44.3	43.0
75°	39.2	39.2	39.2	38.0	38.0	36.7	36.7	35.4	35.4	32.9	32.9
77.5°	29.1	29.1	29.1	27.8	27.8	27.8	26.6	26.6	25.3	24.0	22.8
80°	20.2	19.0	19.0	19.0	19.0	17.7	17.7	17.7	16.4	16.4	15.2
82.5°	11.4	11.4	11.4	11.4	11.4	11.4	10.1	10.1	10.1	8.9	8.9
85°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	3.8	3.8	3.8
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°	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3
2.5°	383.3	383.3	383.3	383.3	382.0	383.3	382.0	383.3	383.3	383.3	383.3
5°	382.0	380.8	380.8	380.8	382.0	382.0	380.8	380.8	380.8	380.8	380.8
7.5°	378.2	378.2	378.2	377.0	378.2	378.2	377.0	378.2	378.2	377.0	378.2
10°	374.4	374.4	373.2	373.2	373.2	373.2	373.2	373.2	371.9	373.2	373.2
12.5°	369.4	369.4	369.4	368.1	368.1	368.1	368.1	368.1	366.9	366.9	368.1
15°	364.3	364.3	363.1	363.1	363.1	361.8	361.8	361.8	361.8	360.5	360.5
17.5°	358.0	356.7	356.7	355.5	355.5	354.2	354.2	352.9	352.9	352.9	351.7
20°	350.4	349.1	347.9	347.9	346.6	346.6	345.4	345.4	344.1	344.1	342.8
22.5°	341.6	340.3	339.0	337.8	337.8	336.5	336.5	335.2	334.0	332.7	332.7
25°	334.0	331.4	330.2	328.9	326.4	326.4	325.1	325.1	323.8	322.6	321.3
27.5°	322.6	320.1	318.8	317.5	316.3	315.0	312.5	312.5	311.2	309.9	308.7
30°	308.7	307.4	304.9	303.6	302.3	302.3	299.8	297.3	297.3	297.3	296.0
32.5°	294.8	292.2	291.0	288.4	287.2	287.2	285.9	283.4	282.1	282.1	280.8
35°	279.6	277.0	274.5	273.2	272.0	270.7	269.5	268.2	266.9	265.7	264.4
37.5°	261.9	259.3	258.1	256.8	255.5	254.3	253.0	251.7	250.5	249.2	250.5
40°	245.4	242.9	240.4	239.1	237.8	237.8	236.6	235.3	234.0	232.8	232.8
42.5°	227.7	225.2	223.9	222.6	221.4	220.1	218.8	217.6	216.3	216.3	215.1
45°	208.7	207.5	204.9	203.7	202.4	202.4	199.9	198.6	198.6	197.3	197.3
47.5°	192.3	189.8	187.2	186.0	184.7	183.4	182.2	180.9	179.6	179.6	179.6
50°	173.3	172.0	169.5	168.2	167.0	167.0	165.7	164.5	163.2	161.9	161.9
52.5°	155.6	154.3	154.3	151.8	150.5	150.5	148.0	148.0	145.5	144.2	142.9
55°	140.4	137.9	136.6	134.1	134.1	132.8	131.6	130.3	129.0	127.8	126.5
57.5°	122.7	121.4	120.2	118.9	118.9	117.6	116.4	115.1	112.6	112.6	110.1
60°	108.8	106.3	105.0	103.7	102.5	102.5	101.2	99.9	97.4	96.1	94.9
62.5°	93.6	91.1	91.1	89.8	87.3	87.3	86.0	83.5	82.2	79.7	78.4
65°	79.7	78.4	75.9	74.6	74.6	73.4	70.8	69.6	68.3	65.8	63.3
67.5°	65.8	64.5	63.3	60.7	60.7	59.5	56.9	55.7	53.1	51.9	49.3
70°	53.1	51.9	50.6	48.1	48.1	46.8	45.5	43.0	40.5	39.2	36.7
72.5°	41.7	40.5	39.2	36.7	36.7	35.4	32.9	31.6	29.1	26.6	25.3
75°	31.6	30.4	27.8	26.6	25.3	25.3	22.8	21.5	20.2	17.7	16.4
77.5°	21.5	20.2	19.0	17.7	17.7	16.4	15.2	13.9	12.7	11.4	8.9
80°	13.9	12.7	11.4	11.4	10.1	10.1	8.9	7.6	6.3	5.1	3.8
82.5°	7.6	7.6	6.3	5.1	5.1	5.1	3.8	3.8	2.5	1.3	1.3
85°	2.5	2.5	2.5	2.5	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°	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3
2.5°	383.3	383.3	383.3	383.3	383.3	383.3	382.0	383.3	383.3	383.3	382.0
5°	382.0	380.8	380.8	382.0	380.8	380.8	382.0	382.0	382.0	380.8	380.8
7.5°	377.0	378.2	377.0	377.0	378.2	378.2	378.2	378.2	377.0	377.0	378.2
10°	373.2	373.2	371.9	373.2	371.9	373.2	373.2	373.2	373.2	373.2	373.2
12.5°	366.9	366.9	366.9	368.1	366.9	366.9	368.1	368.1	368.1	368.1	368.1
15°	359.3	359.3	360.5	359.3	360.5	360.5	360.5	360.5	360.5	360.5	361.8
17.5°	351.7	351.7	351.7	351.7	351.7	351.7	351.7	351.7	351.7	352.9	352.9
20°	342.8	342.8	342.8	342.8	342.8	341.6	342.8	342.8	344.1	344.1	344.1
22.5°	331.4	331.4	331.4	331.4	331.4	331.4	331.4	331.4	332.7	334.0	332.7
25°	320.1	320.1	320.1	320.1	320.1	320.1	320.1	321.3	321.3	321.3	322.6
27.5°	308.7	308.7	308.7	307.4	308.7	307.4	308.7	308.7	309.9	308.7	309.9
30°	296.0	294.8	294.8	294.8	294.8	296.0	294.8	294.8	296.0	297.3	296.0
32.5°	279.6	279.6	279.6	280.8	280.8	280.8	282.1	280.8	280.8	282.1	282.1
35°	264.4	264.4	264.4	265.7	265.7	265.7	265.7	266.9	266.9	266.9	268.2
37.5°	247.9	249.2	247.9	249.2	249.2	250.5	250.5	250.5	250.5	251.7	251.7
40°	232.8	231.5	232.8	232.8	232.8	232.8	232.8	232.8	234.0	235.3	235.3
42.5°	215.1	215.1	215.1	215.1	215.1	215.1	216.3	216.3	216.3	217.6	217.6
45°	197.3	196.1	196.1	196.1	196.1	197.3	196.1	197.3	197.3	198.6	198.6
47.5°	178.4	178.4	178.4	178.4	178.4	178.4	178.4	178.4	178.4	179.6	178.4
50°	161.9	160.7	159.4	159.4	158.1	159.4	158.1	158.1	158.1	159.4	158.1
52.5°	142.9	141.7	140.4	140.4	140.4	139.2	137.9	137.9	137.9	136.6	136.6
55°	126.5	125.2	122.7	124.0	121.4	120.2	120.2	118.9	117.6	117.6	116.4
57.5°	108.8	107.5	106.3	105.0	105.0	102.5	101.2	99.9	98.7	97.4	94.9
60°	93.6	91.1	88.6	88.6	87.3	86.0	83.5	81.0	79.7	77.2	75.9
62.5°	77.2	74.6	72.1	70.8	69.6	68.3	65.8	63.3	60.7	59.5	56.9
65°	62.0	59.5	56.9	55.7	54.4	51.9	49.3	46.8	44.3	41.7	40.5
67.5°	46.8	44.3	43.0	40.5	39.2	36.7	34.2	32.9	30.4	27.8	24.0
70°	34.2	31.6	29.1	27.8	26.6	24.0	22.8	20.2	17.7	16.4	13.9
72.5°	22.8	20.2	19.0	17.7	16.4	15.2	12.7	11.4	8.9	7.6	6.3
75°	13.9	12.7	11.4	10.1	8.9	7.6	6.3	5.1	3.8	2.5	1.3
77.5°	7.6	6.3	5.1	5.1	3.8	2.5	2.5	1.3	1.3	1.3	1.3
80°	3.8	2.5	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: P644096

CATALOG NUMBER: ML5615LSWW9FS1E - 592SC WW - 1200LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3
2.5°	383.3	383.3	383.3	383.3	383.3	383.3	383.3	383.3
5°	382.0	382.0	380.8	382.0	380.8	380.8	380.8	382.0
7.5°	378.2	378.2	378.2	378.2	378.2	378.2	378.2	378.2
10°	373.2	373.2	373.2	374.4	374.4	374.4	373.2	374.4
12.5°	368.1	368.1	368.1	369.4	368.1	369.4	368.1	369.4
15°	361.8	361.8	363.1	363.1	361.8	361.8	363.1	363.1
17.5°	352.9	354.2	354.2	354.2	354.2	354.2	354.2	355.5
20°	345.4	345.4	344.1	345.4	345.4	346.6	346.6	345.4
22.5°	332.7	335.2	335.2	335.2	335.2	335.2	335.2	335.2
25°	322.6	322.6	322.6	323.8	322.6	322.6	323.8	322.6
27.5°	309.9	311.2	309.9	311.2	311.2	311.2	311.2	311.2
30°	297.3	297.3	297.3	297.3	297.3	298.5	297.3	297.3
32.5°	282.1	283.4	283.4	283.4	284.6	283.4	283.4	284.6
35°	268.2	268.2	268.2	269.5	268.2	269.5	269.5	268.2
37.5°	251.7	253.0	251.7	253.0	253.0	253.0	253.0	253.0
40°	236.6	235.3	236.6	235.3	236.6	236.6	236.6	235.3
42.5°	217.6	218.8	218.8	218.8	218.8	218.8	218.8	217.6
45°	198.6	199.9	199.9	199.9	199.9	199.9	201.1	201.1
47.5°	178.4	180.9	180.9	180.9	179.6	182.2	180.9	180.9
50°	158.1	158.1	159.4	159.4	160.7	160.7	160.7	160.7
52.5°	137.9	136.6	137.9	137.9	139.2	137.9	139.2	137.9
55°	115.1	115.1	115.1	113.9	115.1	115.1	115.1	115.1
57.5°	94.9	93.6	92.3	91.1	91.1	91.1	89.8	91.1
60°	73.4	70.8	72.1	69.6	68.3	67.0	67.0	65.8
62.5°	54.4	51.9	50.6	49.3	46.8	44.3	44.3	43.0
65°	36.7	34.2	32.9	30.4	29.1	27.8	26.6	26.6
67.5°	22.8	20.2	20.2	19.0	17.7	16.4	15.2	15.2
70°	12.7	11.4	10.1	8.9	8.9	7.6	6.3	6.3
72.5°	5.1	3.8	3.8	2.5	2.5	2.5	2.5	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)