

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: P644161

Luminaire Tested: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644161
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-117)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1019.4 lumens
Efficiency: N/A
Efficacy: 59.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.25
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

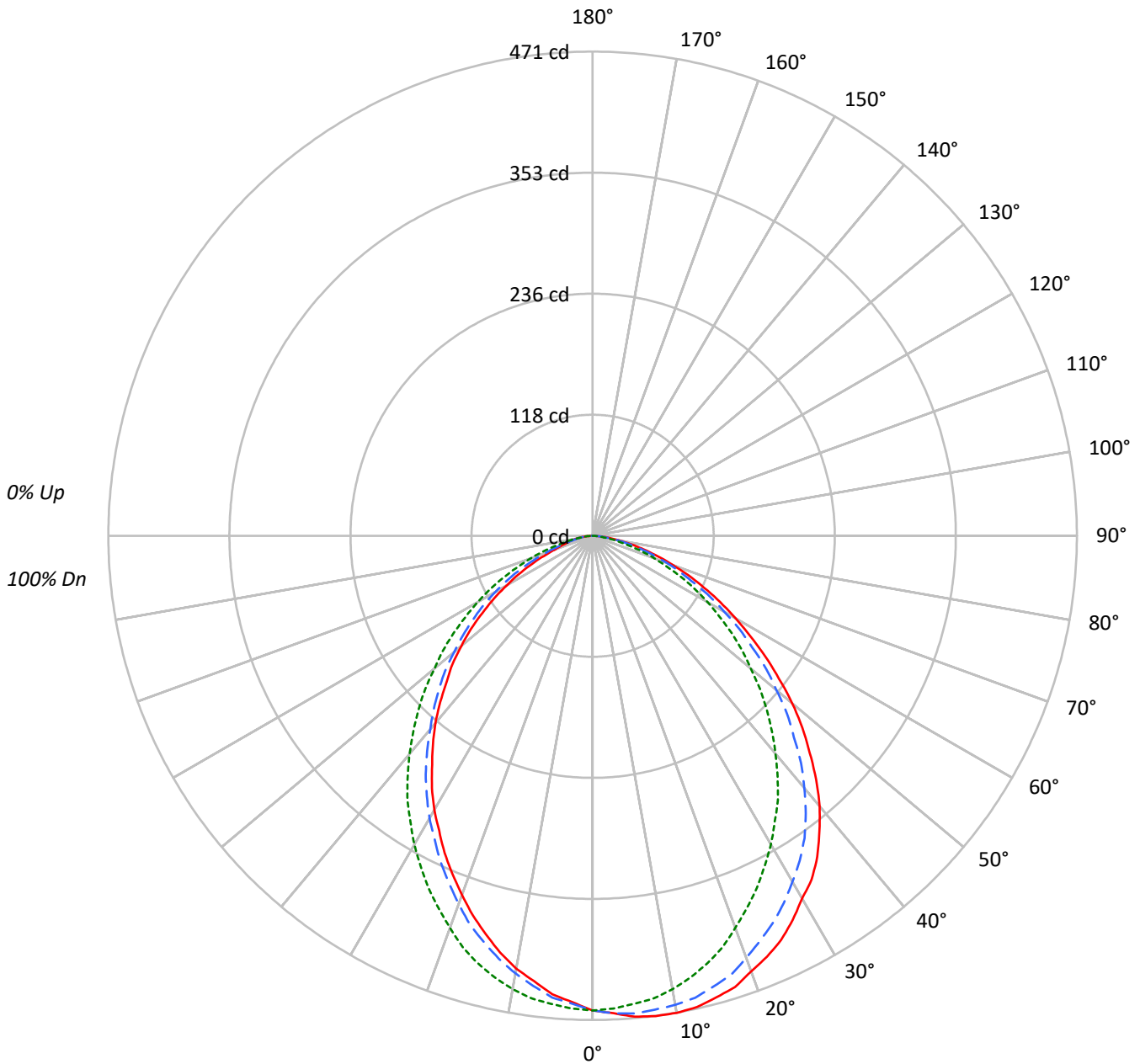
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P644161

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K

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	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87		
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74		
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64		
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55		
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49		
6	73	61	52	46	72	60	52	46	58	51	46	56	50	45	55	49	45	43		
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38		
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	46	41	36	35		
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31		
10	56	43	36	31	55	43	36	31	42	35	30	41	35	30	40	34	30	29		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	25316	25316	25316	25316	25316
5°	25842	25671	25160	24813	24642
10°	26230	25796	24927	24064	23803
15°	26385	25766	24444	23212	22770
20°	26305	25488	23674	22227	21679
25°	26239	25114	22858	21165	20596
30°	25789	24605	21953	20079	19490
35°	25498	24039	21021	18939	18210
40°	24589	22922	19809	17583	17025
45°	23150	21460	18568	16397	15552
50°	21620	19888	17108	14985	14191
55°	19622	18131	15751	13524	12482
60°	17564	16194	14155	11929	10569
65°	15527	14113	12310	10079	8470
70°	13207	12214	10226	7726	6235
75°	10866	9870	7583	5274	5274
80°	8334	7356	5398	4420	4893
85°	5850	4906	3900	3900	3900

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 23150 cd/sqm



TEST NUMBER: P644161

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.4	4.3
10°-20°	121.5	11.9
20°-30°	175.9	17.3
30°-40°	199.8	19.6
40°-50°	188.6	18.5
50°-60°	148.7	14.6
60°-70°	93.1	9.1
70°-80°	40.2	3.9
80°-90°	8.3	0.8
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°	340.8	33.4
0°-40°	540.5	53.0
0°-60°	877.8	86.1
0°-90°	1019.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1019.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	462	462	462	462	462	
5°	470	466	457	451	448	45
15°	465	454	431	409	401	131
25°	434	415	378	350	340	199
35°	381	359	314	283	272	237
45°	299	277	240	212	201	231
55°	205	190	165	142	131	184
65°	120	109	95	78	65	119
75°	51	47	36	25	25	56
85°	9	8	6	6	6	11
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°	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8
2.5°	464.9	464.9	466.5	466.5	464.9	464.9	464.9	464.9	464.9	464.9	464.9
5°	469.6	469.6	469.6	469.6	468.0	468.0	468.0	468.0	468.0	466.5	466.5
7.5°	471.2	471.2	471.2	471.2	469.6	469.6	468.0	468.0	468.0	466.5	464.9
10°	471.2	471.2	471.2	469.6	469.6	468.0	469.6	468.0	466.5	464.9	463.4
12.5°	469.6	468.0	468.0	468.0	466.5	466.5	466.5	464.9	463.4	461.8	460.3
15°	464.9	464.9	464.9	463.4	463.4	461.8	461.8	460.3	458.7	455.6	454.0
17.5°	460.3	460.3	458.7	458.7	457.2	455.6	455.6	454.0	452.5	449.4	447.8
20°	450.9	450.9	450.9	449.4	447.8	447.8	446.3	444.7	441.6	438.5	436.9
22.5°	443.2	441.6	441.6	440.1	438.5	438.5	436.9	433.8	432.3	429.2	426.1
25°	433.8	432.3	432.3	430.7	429.2	427.6	427.6	424.5	421.4	418.3	415.2
27.5°	421.4	421.4	419.8	418.3	416.7	416.7	415.2	413.6	409.0	405.8	402.7
30°	407.4	409.0	407.4	405.8	404.3	404.3	402.7	399.6	396.5	391.9	388.7
32.5°	396.5	396.5	395.0	393.4	390.3	390.3	390.3	385.6	382.5	379.4	374.7
35°	381.0	381.0	381.0	377.9	376.3	374.7	373.2	370.1	367.0	363.9	359.2
37.5°	362.3	363.9	362.3	360.8	359.2	357.6	356.1	353.0	348.3	345.2	340.5
40°	343.6	343.6	342.1	340.5	339.0	337.4	335.9	332.8	329.7	325.0	320.3
42.5°	321.9	321.9	320.3	318.8	317.2	315.7	315.7	312.5	307.9	304.8	300.1
45°	298.6	298.6	298.6	297.0	295.4	293.9	292.3	290.8	287.7	283.0	276.8
47.5°	276.8	276.8	276.8	273.7	273.7	270.6	269.0	265.9	264.3	259.7	256.6
50°	253.5	251.9	251.9	250.3	248.8	247.2	247.2	242.6	241.0	237.9	233.2
52.5°	228.6	228.6	228.6	227.0	225.5	223.9	223.9	220.8	217.7	214.6	213.0
55°	205.3	205.3	205.3	203.7	202.1	202.1	200.6	197.5	195.9	192.8	189.7
57.5°	181.9	183.5	181.9	180.4	180.4	178.8	178.8	177.3	174.2	171.0	169.5
60°	160.2	160.2	160.2	158.6	157.1	157.1	157.1	155.5	152.4	150.8	147.7
62.5°	139.9	139.9	138.4	138.4	136.8	136.8	135.3	133.7	132.2	130.6	129.1
65°	119.7	118.2	118.2	118.2	116.6	116.6	116.6	115.1	112.0	110.4	108.8
67.5°	101.1	101.1	99.5	99.5	98.0	98.0	98.0	96.4	94.9	93.3	91.7
70°	82.4	82.4	82.4	82.4	80.9	80.9	80.9	79.3	77.7	77.7	76.2
72.5°	66.9	66.9	66.9	66.9	65.3	65.3	65.3	63.8	62.2	60.6	60.6
75°	51.3	52.9	51.3	51.3	51.3	51.3	49.8	49.8	48.2	46.6	46.6
77.5°	38.9	38.9	38.9	38.9	37.3	37.3	37.3	37.3	35.8	34.2	34.2
80°	26.4	26.4	26.4	26.4	26.4	26.4	26.4	26.4	24.9	24.9	23.3
82.5°	15.5	17.1	17.1	17.1	15.5	15.5	15.5	15.5	15.5	15.5	14.0
85°	9.3	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
87.5°	3.1	3.1	3.1	3.1	3.1	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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CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8
2.5°	463.4	463.4	463.4	463.4	461.8	461.8	461.8	460.3	460.3	460.3	460.3
5°	464.9	463.4	463.4	461.8	461.8	461.8	460.3	460.3	458.7	457.2	457.2
7.5°	463.4	463.4	461.8	460.3	460.3	458.7	457.2	455.6	454.0	454.0	450.9
10°	461.8	460.3	458.7	457.2	455.6	455.6	452.5	450.9	449.4	447.8	446.3
12.5°	457.2	455.6	454.0	450.9	450.9	449.4	446.3	444.7	441.6	440.1	436.9
15°	450.9	449.4	447.8	444.7	443.2	441.6	438.5	435.4	432.3	430.7	427.6
17.5°	444.7	441.6	438.5	435.4	433.8	432.3	429.2	426.1	422.9	419.8	416.7
20°	433.8	430.7	427.6	422.9	421.4	419.8	415.2	412.1	409.0	405.8	402.7
22.5°	422.9	419.8	415.2	412.1	410.5	407.4	404.3	399.6	396.5	391.9	388.7
25°	412.1	407.4	402.7	399.6	396.5	395.0	390.3	387.2	381.0	377.9	374.7
27.5°	398.1	395.0	390.3	385.6	382.5	379.4	376.3	371.6	367.0	362.3	359.2
30°	384.1	379.4	374.7	371.6	367.0	365.4	360.8	356.1	351.4	346.8	343.6
32.5°	370.1	365.4	360.8	356.1	353.0	349.9	345.2	340.5	334.3	329.7	326.5
35°	354.5	349.9	343.6	339.0	335.9	332.8	328.1	323.4	318.8	314.1	309.4
37.5°	335.9	329.7	326.5	321.9	317.2	314.1	309.4	303.2	300.1	295.4	290.8
40°	315.7	311.0	306.3	301.7	297.0	295.4	289.2	284.6	281.4	276.8	272.1
42.5°	295.4	290.8	284.6	279.9	276.8	275.2	270.6	265.9	261.2	258.1	253.5
45°	273.7	269.0	264.3	259.7	256.6	255.0	250.3	247.2	242.6	239.5	234.8
47.5°	251.9	247.2	244.1	239.5	236.4	234.8	231.7	227.0	222.4	220.8	217.7
50°	230.1	225.5	222.4	217.7	216.1	214.6	211.5	208.4	205.3	200.6	199.0
52.5°	208.4	203.7	200.6	197.5	197.5	194.4	191.3	189.7	186.6	183.5	180.4
55°	186.6	185.0	181.9	177.3	177.3	175.7	172.6	169.5	166.4	164.8	161.7
57.5°	164.8	163.3	160.2	158.6	157.1	155.5	153.9	150.8	149.3	146.2	144.6
60°	146.2	144.6	141.5	139.9	138.4	136.8	135.3	132.2	130.6	129.1	127.5
62.5°	126.0	124.4	122.8	121.3	119.7	118.2	118.2	115.1	113.5	112.0	110.4
65°	108.8	105.7	104.2	102.6	102.6	101.1	99.5	98.0	96.4	94.9	93.3
67.5°	90.2	88.6	88.6	85.5	85.5	84.0	82.4	82.4	79.3	77.7	76.2
70°	74.6	73.1	71.5	70.0	70.0	68.4	66.9	65.3	63.8	63.8	62.2
72.5°	59.1	57.5	57.5	56.0	54.4	54.4	52.9	51.3	49.8	49.8	48.2
75°	45.1	43.5	43.5	42.0	42.0	40.4	38.9	38.9	37.3	35.8	34.2
77.5°	32.7	32.7	31.1	31.1	29.5	29.5	28.0	28.0	26.4	24.9	24.9
80°	23.3	21.8	21.8	20.2	20.2	20.2	18.7	18.7	17.1	17.1	15.5
82.5°	14.0	14.0	12.4	12.4	12.4	12.4	10.9	10.9	10.9	9.3	9.3
85°	7.8	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	4.7
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



TEST NUMBER: P644161

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8
2.5°	458.7	458.7	457.2	458.7	457.2	457.2	457.2	457.2	455.6	455.6	455.6
5°	455.6	454.0	454.0	452.5	454.0	452.5	450.9	450.9	450.9	450.9	449.4
7.5°	449.4	449.4	447.8	446.3	446.3	444.7	443.2	443.2	441.6	441.6	440.1
10°	444.7	441.6	440.1	438.5	438.5	436.9	435.4	433.8	432.3	430.7	430.7
12.5°	433.8	432.3	430.7	429.2	429.2	426.1	424.5	422.9	421.4	419.8	418.3
15°	426.1	422.9	419.8	418.3	418.3	415.2	413.6	412.1	409.0	409.0	405.8
17.5°	413.6	410.5	407.4	405.8	404.3	402.7	401.2	398.1	396.5	393.4	393.4
20°	398.1	396.5	391.9	390.3	388.7	387.2	384.1	382.5	381.0	377.9	376.3
22.5°	385.6	381.0	377.9	376.3	376.3	371.6	370.1	367.0	365.4	363.9	360.8
25°	370.1	367.0	363.9	360.8	360.8	357.6	356.1	353.0	349.9	348.3	346.8
27.5°	354.5	351.4	346.8	345.2	343.6	342.1	339.0	335.9	332.8	331.2	329.7
30°	337.4	334.3	331.2	329.7	326.5	323.4	320.3	318.8	317.2	314.1	312.5
32.5°	321.9	317.2	314.1	311.0	311.0	306.3	304.8	301.7	300.1	298.6	295.4
35°	304.8	300.1	297.0	295.4	293.9	289.2	286.1	283.0	283.0	279.9	278.3
37.5°	286.1	281.4	279.9	276.8	275.2	272.1	269.0	267.5	264.3	261.2	261.2
40°	269.0	264.3	259.7	259.7	256.6	255.0	250.3	248.8	245.7	244.1	242.6
42.5°	250.3	245.7	242.6	241.0	239.5	236.4	233.2	230.1	228.6	227.0	225.5
45°	230.1	227.0	225.5	222.4	220.8	217.7	216.1	213.0	211.5	208.4	206.8
47.5°	213.0	209.9	206.8	205.3	203.7	200.6	199.0	195.9	194.4	191.3	189.7
50°	195.9	192.8	189.7	188.2	186.6	183.5	180.4	178.8	175.7	174.2	171.0
52.5°	177.3	174.2	171.0	171.0	169.5	166.4	164.8	161.7	158.6	155.5	153.9
55°	160.2	157.1	153.9	152.4	152.4	149.3	146.2	144.6	141.5	139.9	136.8
57.5°	141.5	138.4	136.8	135.3	135.3	132.2	130.6	127.5	126.0	122.8	121.3
60°	124.4	122.8	119.7	119.7	118.2	115.1	113.5	110.4	108.8	107.3	105.7
62.5°	107.3	105.7	102.6	102.6	101.1	99.5	98.0	94.9	93.3	90.2	88.6
65°	90.2	88.6	87.1	85.5	85.5	82.4	80.9	79.3	77.7	76.2	74.6
67.5°	74.6	73.1	71.5	71.5	70.0	68.4	65.3	63.8	62.2	60.6	59.1
70°	60.6	57.5	56.0	56.0	54.4	52.9	51.3	49.8	48.2	46.6	45.1
72.5°	46.6	43.5	43.5	42.0	40.4	38.9	38.9	37.3	35.8	35.8	32.7
75°	34.2	32.7	31.1	31.1	29.5	28.0	26.4	26.4	24.9	24.9	24.9
77.5°	23.3	21.8	21.8	20.2	20.2	20.2	18.7	18.7	18.7	18.7	20.2
80°	15.5	15.5	14.0	14.0	14.0	14.0	14.0	14.0	14.0	15.5	15.5
82.5°	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	10.9
85°	4.7	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
87.5°	1.6	1.6	3.1	1.6	3.1	1.6	3.1	3.1	3.1	3.1	3.1
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: P644161

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	461.8	461.8	461.8	461.8	461.8	461.8	461.8	461.8
2.5°	454.0	455.6	455.6	454.0	455.6	454.0	454.0	454.0
5°	449.4	447.8	447.8	447.8	446.3	447.8	447.8	447.8
7.5°	440.1	440.1	438.5	438.5	436.9	436.9	438.5	436.9
10°	429.2	427.6	429.2	427.6	427.6	427.6	426.1	427.6
12.5°	418.3	416.7	416.7	415.2	415.2	415.2	415.2	415.2
15°	405.8	404.3	404.3	402.7	402.7	401.2	402.7	401.2
17.5°	391.9	391.9	388.7	388.7	388.7	388.7	388.7	387.2
20°	374.7	374.7	373.2	374.7	371.6	371.6	371.6	371.6
22.5°	360.8	359.2	357.6	357.6	357.6	356.1	356.1	356.1
25°	343.6	343.6	342.1	342.1	340.5	340.5	340.5	340.5
27.5°	328.1	326.5	326.5	326.5	325.0	323.4	323.4	323.4
30°	311.0	311.0	309.4	309.4	307.9	307.9	307.9	307.9
32.5°	293.9	293.9	292.3	290.8	290.8	290.8	289.2	290.8
35°	276.8	275.2	275.2	273.7	273.7	273.7	272.1	272.1
37.5°	259.7	258.1	256.6	258.1	256.6	255.0	255.0	255.0
40°	241.0	239.5	239.5	237.9	237.9	237.9	236.4	237.9
42.5°	223.9	223.9	222.4	220.8	220.8	220.8	219.2	219.2
45°	206.8	203.7	205.3	203.7	203.7	202.1	202.1	200.6
47.5°	188.2	186.6	186.6	186.6	185.0	185.0	185.0	185.0
50°	169.5	167.9	169.5	167.9	167.9	166.4	166.4	166.4
52.5°	152.4	150.8	150.8	150.8	150.8	149.3	149.3	149.3
55°	135.3	133.7	133.7	133.7	132.2	132.2	130.6	130.6
57.5°	119.7	118.2	116.6	115.1	115.1	115.1	113.5	113.5
60°	102.6	101.1	99.5	99.5	98.0	98.0	98.0	96.4
62.5°	87.1	85.5	84.0	84.0	82.4	80.9	80.9	80.9
65°	71.5	70.0	70.0	68.4	66.9	66.9	65.3	65.3
67.5°	57.5	56.0	56.0	54.4	52.9	51.3	51.3	51.3
70°	45.1	43.5	42.0	42.0	42.0	40.4	38.9	38.9
72.5°	32.7	31.1	31.1	31.1	31.1	31.1	31.1	31.1
75°	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9
77.5°	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
80°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
82.5°	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	1.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
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Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - - 90°-270°

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(END OF REPORT)