

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: P644087

Luminaire Tested: ML5615LSWW9FS1E - 592H WW - 1500LM - 3000K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644087
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-130)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 592H WW - 1500LM - 3000K
Description: ML56 RR, WW OPTIC, 5" 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: 1013.7 lumens
Efficiency: N/A
Efficacy: 59.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.25
Luminous Opening: Circular (Dia: 0.42' x H: 0')
CIE Type: Direct

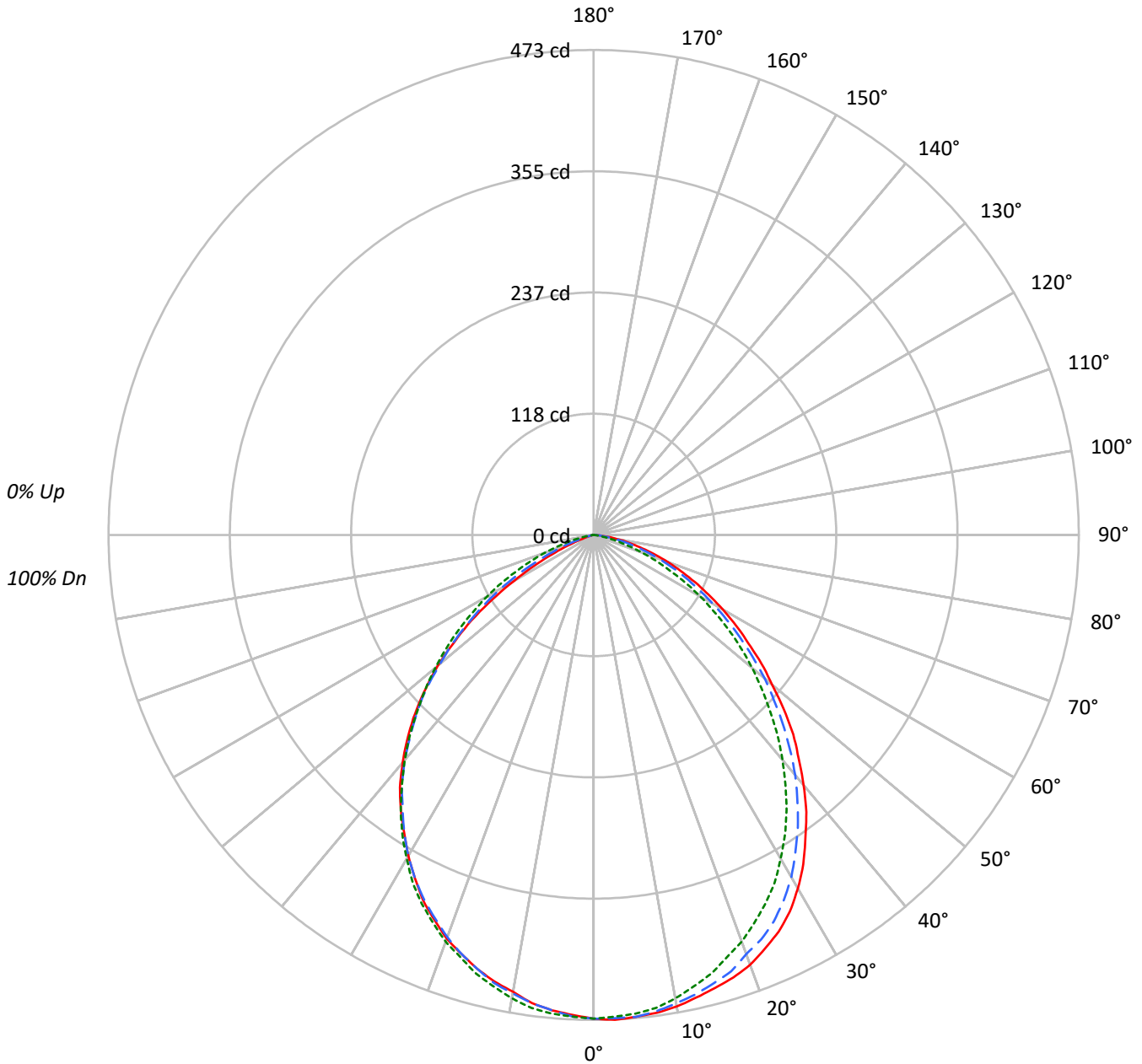
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20				
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	96	94	92	93	91	90	88		
2	102	95	89	84	100	93	88	83	90	85	81	87	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	67	60	54	65	59	54	64	58	53	62	57	52	50		
6	74	62	54	48	73	61	54	48	60	53	47	58	52	47	56	51	47	45		
7	69	57	49	43	68	56	48	43	54	48	42	53	47	42	52	46	42	40		
8	65	52	44	39	63	51	44	39	50	43	38	49	43	38	48	42	38	36		
9	61	48	40	35	59	47	40	35	46	39	35	45	39	35	44	39	34	33		
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	31	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	37244	37244	37244	37244	37244
5°	37387	37387	37133	36879	36879
10°	37434	37178	36793	36408	36280
15°	37381	36989	36204	35812	35812
20°	37484	36543	35468	35065	35199
25°	37192	36217	34545	34126	34266
30°	36297	35130	33234	32943	32943
35°	34674	33450	31599	31291	31599
40°	32801	31482	29503	29503	29833
45°	30712	29104	27140	27140	27497
50°	27890	26711	24746	23960	24353
55°	25310	23989	22007	20465	20025
60°	22972	21204	18930	16420	14146
65°	20323	18530	15242	11357	8368
70°	17726	15510	11448	6278	3324
75°	14152	12200	7320	1952	976
80°	10910	8001	2909	727	727
85°	5797	4348	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 30712 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.4	4.4
10°-20°	125.6	12.4
20°-30°	185.2	18.3
30°-40°	209.7	20.7
40°-50°	193.7	19.1
50°-60°	144.7	14.3
60°-70°	80.0	7.9
70°-80°	27.0	2.7
80°-90°	3.4	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°	355.2	35.0
0°-40°	564.9	55.7
0°-60°	903.3	89.1
0°-90°	1013.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1013.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	472	472	472	472	472	
5°	472	472	469	465	465	45
15°	457	453	443	438	438	129
25°	427	416	397	392	393	196
35°	360	347	328	325	328	225
45°	275	261	243	243	246	211
55°	184	174	160	149	146	166
65°	109	99	82	61	45	108
75°	46	40	24	6	3	51
85°	6	5	0	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°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	473.4	473.4	473.4	473.4	471.8	471.8	473.4	471.8	471.8	471.8	471.8
5°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
7.5°	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	468.6	468.6	468.6
10°	467.0	467.0	467.0	467.0	467.0	467.0	467.0	465.4	465.4	465.4	463.8
12.5°	462.2	463.8	462.2	463.8	462.2	462.2	460.6	460.6	460.6	459.0	459.0
15°	457.4	457.4	457.4	457.4	457.4	455.8	455.8	454.2	454.2	454.2	452.6
17.5°	452.6	451.0	451.0	451.0	449.4	449.4	449.4	449.4	447.8	446.2	446.2
20°	446.2	444.6	444.6	444.6	443.0	443.0	441.4	441.4	438.2	438.2	435.0
22.5°	436.6	436.6	436.6	435.0	435.0	433.4	433.4	431.8	430.2	428.6	427.0
25°	427.0	427.0	425.4	425.4	423.8	423.8	423.8	420.6	419.0	417.4	415.8
27.5°	414.2	414.2	412.6	412.6	411.0	409.4	409.4	406.2	406.2	403.0	401.4
30°	398.2	398.2	398.2	395.0	395.0	395.0	393.4	391.8	388.6	387.0	385.4
32.5°	380.6	379.0	379.0	379.0	377.4	375.8	375.8	372.6	371.0	369.4	366.2
35°	359.8	359.8	359.8	359.8	358.2	356.6	356.6	353.4	351.8	348.6	347.1
37.5°	340.7	340.7	339.1	339.1	335.9	337.5	335.9	334.3	332.7	327.9	326.3
40°	318.3	318.3	318.3	316.7	315.1	315.1	313.5	311.9	308.7	307.1	305.5
42.5°	295.9	295.9	295.9	294.3	292.7	292.7	292.7	289.5	287.9	286.3	283.1
45°	275.1	273.5	273.5	271.9	271.9	270.3	268.7	267.1	265.5	263.9	260.7
47.5°	251.1	251.1	249.5	249.5	247.9	247.9	246.3	244.7	243.1	241.5	238.3
50°	227.1	228.7	228.7	227.1	227.1	225.5	223.9	223.9	222.3	220.7	217.5
52.5°	206.3	206.3	206.3	204.7	204.7	203.1	203.1	201.5	199.9	196.7	195.1
55°	183.9	185.5	183.9	183.9	183.9	182.3	182.3	180.7	179.1	175.9	174.3
57.5°	164.7	164.7	163.1	163.1	161.5	161.5	161.5	159.9	158.3	156.7	153.5
60°	145.5	143.9	143.9	143.9	142.3	142.3	142.3	139.1	137.5	135.9	134.3
62.5°	126.3	126.3	126.3	124.7	124.7	123.1	121.5	121.5	119.9	118.3	115.2
65°	108.8	108.8	107.2	107.2	107.2	105.6	105.6	104.0	102.4	100.8	99.2
67.5°	91.2	91.2	91.2	89.6	89.6	89.6	88.0	86.4	86.4	84.8	83.2
70°	76.8	75.2	75.2	75.2	73.6	73.6	73.6	72.0	70.4	68.8	67.2
72.5°	60.8	60.8	60.8	60.8	59.2	59.2	57.6	57.6	56.0	54.4	52.8
75°	46.4	46.4	46.4	46.4	44.8	44.8	44.8	43.2	43.2	41.6	40.0
77.5°	35.2	35.2	35.2	33.6	33.6	32.0	32.0	32.0	30.4	30.4	28.8
80°	24.0	24.0	22.4	22.4	22.4	22.4	22.4	20.8	19.2	19.2	17.6
82.5°	14.4	14.4	14.4	12.8	12.8	12.8	12.8	12.8	11.2	11.2	9.6
85°	6.4	6.4	6.4	6.4	6.4	6.4	4.8	4.8	4.8	4.8	4.8
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	470.2	470.2	470.2	470.2
5°	470.2	470.2	470.2	470.2	470.2	468.6	470.2	468.6	468.6	468.6	468.6
7.5°	467.0	467.0	467.0	467.0	465.4	467.0	465.4	465.4	465.4	465.4	463.8
10°	463.8	462.2	462.2	462.2	462.2	460.6	460.6	459.0	459.0	459.0	457.4
12.5°	459.0	457.4	457.4	455.8	455.8	455.8	454.2	454.2	452.6	451.0	451.0
15°	451.0	451.0	449.4	447.8	447.8	446.2	446.2	444.6	444.6	443.0	441.4
17.5°	444.6	443.0	441.4	439.8	438.2	438.2	436.6	435.0	435.0	431.8	431.8
20°	433.4	431.8	430.2	428.6	428.6	428.6	425.4	425.4	423.8	422.2	420.6
22.5°	423.8	422.2	419.0	417.4	417.4	415.8	414.2	412.6	411.0	409.4	407.8
25°	412.6	411.0	407.8	406.2	404.6	403.0	401.4	399.8	398.2	396.6	395.0
27.5°	398.2	395.0	395.0	391.8	390.2	388.6	387.0	385.4	383.8	382.2	380.6
30°	382.2	380.6	377.4	374.2	372.6	372.6	369.4	367.8	367.8	364.6	363.0
32.5°	364.6	361.4	358.2	356.6	355.0	353.4	351.8	350.2	348.6	347.1	345.5
35°	345.5	340.7	339.1	335.9	335.9	334.3	332.7	329.5	329.5	327.9	324.7
37.5°	324.7	321.5	319.9	316.7	315.1	313.5	311.9	310.3	308.7	307.1	305.5
40°	302.3	299.1	297.5	295.9	294.3	292.7	291.1	289.5	287.9	286.3	284.7
42.5°	279.9	278.3	275.1	271.9	271.9	270.3	268.7	267.1	265.5	265.5	263.9
45°	257.5	255.9	252.7	251.1	249.5	249.5	246.3	246.3	244.7	243.1	243.1
47.5°	236.7	233.5	230.3	230.3	227.1	228.7	225.5	225.5	222.3	222.3	220.7
50°	214.3	212.7	209.5	207.9	207.9	206.3	204.7	204.7	203.1	201.5	199.9
52.5°	193.5	190.3	188.7	187.1	185.5	185.5	183.9	183.9	180.7	180.7	179.1
55°	172.7	171.1	167.9	166.3	166.3	166.3	163.1	161.5	161.5	159.9	158.3
57.5°	151.9	150.3	148.7	147.1	145.5	145.5	143.9	142.3	140.7	139.1	135.9
60°	132.7	131.1	129.5	127.9	126.3	126.3	124.7	123.1	121.5	119.9	118.3
62.5°	113.6	113.6	110.4	108.8	107.2	107.2	105.6	104.0	102.4	100.8	99.2
65°	97.6	96.0	92.8	91.2	91.2	91.2	88.0	86.4	84.8	81.6	80.0
67.5°	81.6	78.4	76.8	76.8	75.2	73.6	72.0	70.4	67.2	65.6	62.4
70°	65.6	64.0	62.4	60.8	59.2	57.6	56.0	54.4	51.2	49.6	48.0
72.5°	51.2	49.6	48.0	46.4	44.8	44.8	41.6	40.0	38.4	35.2	33.6
75°	38.4	36.8	35.2	33.6	32.0	30.4	30.4	27.2	25.6	24.0	20.8
77.5°	27.2	25.6	24.0	22.4	22.4	20.8	19.2	17.6	16.0	14.4	12.8
80°	17.6	16.0	14.4	14.4	12.8	12.8	11.2	9.6	8.0	6.4	6.4
82.5°	9.6	8.0	8.0	6.4	6.4	6.4	4.8	3.2	3.2	3.2	1.6
85°	3.2	3.2	3.2	1.6	1.6	1.6	1.6	1.6	1.6	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°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	468.6	468.6
5°	467.0	467.0	467.0	467.0	467.0	467.0	465.4	465.4	465.4	465.4	465.4
7.5°	463.8	463.8	463.8	462.2	462.2	462.2	462.2	460.6	460.6	460.6	460.6
10°	457.4	457.4	457.4	455.8	455.8	455.8	455.8	455.8	454.2	454.2	454.2
12.5°	449.4	449.4	449.4	449.4	449.4	447.8	447.8	447.8	447.8	446.2	447.8
15°	441.4	441.4	439.8	439.8	439.8	438.2	438.2	438.2	438.2	438.2	438.2
17.5°	431.8	430.2	430.2	428.6	428.6	428.6	428.6	428.6	428.6	428.6	428.6
20°	420.6	419.0	419.0	419.0	419.0	417.4	417.4	415.8	417.4	417.4	417.4
22.5°	407.8	406.2	406.2	406.2	404.6	404.6	404.6	404.6	404.6	404.6	404.6
25°	395.0	393.4	391.8	391.8	391.8	390.2	390.2	391.8	391.8	391.8	391.8
27.5°	379.0	379.0	377.4	377.4	377.4	375.8	375.8	375.8	377.4	377.4	377.4
30°	361.4	361.4	361.4	361.4	359.8	359.8	361.4	359.8	361.4	359.8	361.4
32.5°	345.5	345.5	343.9	342.3	342.3	343.9	342.3	342.3	343.9	343.9	343.9
35°	324.7	324.7	324.7	324.7	324.7	324.7	324.7	324.7	324.7	326.3	327.9
37.5°	305.5	305.5	305.5	305.5	305.5	305.5	305.5	307.1	307.1	307.1	307.1
40°	284.7	284.7	284.7	284.7	284.7	284.7	284.7	284.7	286.3	286.3	287.9
42.5°	262.3	263.9	263.9	263.9	262.3	262.3	263.9	263.9	263.9	265.5	265.5
45°	241.5	241.5	241.5	241.5	243.1	241.5	241.5	241.5	243.1	243.1	243.1
47.5°	220.7	219.1	219.1	220.7	219.1	219.1	219.1	219.1	220.7	220.7	219.1
50°	199.9	198.3	198.3	198.3	196.7	196.7	198.3	195.1	195.1	195.1	196.7
52.5°	179.1	177.5	175.9	175.9	175.9	174.3	172.7	172.7	172.7	171.1	171.1
55°	156.7	155.1	153.5	153.5	153.5	151.9	151.9	148.7	148.7	147.1	147.1
57.5°	135.9	134.3	132.7	132.7	131.1	129.5	129.5	126.3	126.3	124.7	121.5
60°	115.2	113.6	112.0	112.0	112.0	108.8	107.2	104.0	104.0	100.8	99.2
62.5°	96.0	94.4	92.8	91.2	91.2	88.0	86.4	83.2	81.6	80.0	76.8
65°	78.4	75.2	73.6	72.0	72.0	68.8	67.2	64.0	60.8	59.2	56.0
67.5°	60.8	59.2	56.0	54.4	54.4	51.2	48.0	46.4	43.2	40.0	38.4
70°	44.8	43.2	40.0	38.4	36.8	35.2	32.0	30.4	27.2	25.6	22.4
72.5°	30.4	28.8	25.6	25.6	24.0	20.8	19.2	17.6	14.4	12.8	11.2
75°	19.2	17.6	16.0	14.4	12.8	11.2	9.6	8.0	6.4	4.8	4.8
77.5°	11.2	9.6	8.0	6.4	6.4	4.8	3.2	3.2	3.2	1.6	1.6
80°	4.8	3.2	3.2	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	0.0	0.0	1.6	1.6
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: P644087

CATALOG NUMBER: ML5615LSWW9FS1E - 592H WW - 1500LM - 3000K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	470.2	468.6	470.2	470.2	468.6	468.6	468.6	468.6
5°	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4
7.5°	462.2	460.6	460.6	460.6	460.6	460.6	460.6	460.6
10°	454.2	454.2	454.2	454.2	454.2	454.2	454.2	452.6
12.5°	446.2	446.2	446.2	446.2	446.2	446.2	446.2	446.2
15°	438.2	438.2	438.2	438.2	438.2	438.2	438.2	438.2
17.5°	428.6	428.6	428.6	428.6	428.6	427.0	428.6	428.6
20°	417.4	417.4	417.4	417.4	417.4	417.4	417.4	419.0
22.5°	404.6	404.6	404.6	404.6	404.6	404.6	404.6	406.2
25°	391.8	391.8	391.8	391.8	391.8	391.8	391.8	393.4
27.5°	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4
30°	361.4	361.4	363.0	361.4	361.4	361.4	363.0	361.4
32.5°	345.5	345.5	345.5	345.5	345.5	345.5	345.5	343.9
35°	327.9	326.3	327.9	327.9	327.9	327.9	327.9	327.9
37.5°	308.7	308.7	308.7	308.7	308.7	308.7	310.3	310.3
40°	289.5	287.9	287.9	289.5	289.5	289.5	287.9	289.5
42.5°	265.5	267.1	267.1	267.1	268.7	267.1	268.7	268.7
45°	243.1	244.7	244.7	244.7	244.7	244.7	246.3	246.3
47.5°	220.7	220.7	220.7	220.7	222.3	222.3	222.3	222.3
50°	196.7	196.7	196.7	196.7	198.3	196.7	198.3	198.3
52.5°	171.1	171.1	171.1	171.1	171.1	171.1	172.7	171.1
55°	145.5	145.5	145.5	145.5	143.9	143.9	143.9	145.5
57.5°	121.5	119.9	118.3	119.9	116.7	116.7	116.7	116.7
60°	96.0	94.4	94.4	92.8	91.2	89.6	91.2	89.6
62.5°	73.6	72.0	72.0	68.8	67.2	67.2	65.6	65.6
65°	54.4	51.2	49.6	49.6	48.0	46.4	44.8	44.8
67.5°	35.2	33.6	32.0	32.0	30.4	28.8	28.8	27.2
70°	20.8	19.2	17.6	19.2	16.0	14.4	14.4	14.4
72.5°	9.6	8.0	8.0	8.0	6.4	6.4	6.4	6.4
75°	4.8	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	1.6	1.6	3.2	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	0.0	0.0	0.0	1.6	1.6	0.0	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

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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)