

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: METALUX

Report Number: P601061

Luminaire Tested: UHBS-24-MV-L840-U-CDL-120V

Issue Date: 8/28/2023

Test Information

Test Method: LM-79-2019
Report Number: P601061
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ()
Test Lab: INNOVATION CENTER
Issue Date: 8/28/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: UHBS-24-MV-L840-U-CDL-120V
Description: UHB Round Select with Clear Reflector with Lens Cover at 120V 24000 LUMEN SETTING AND 4000K
Light Source: -
Ballast/Driver: Electrical Driver

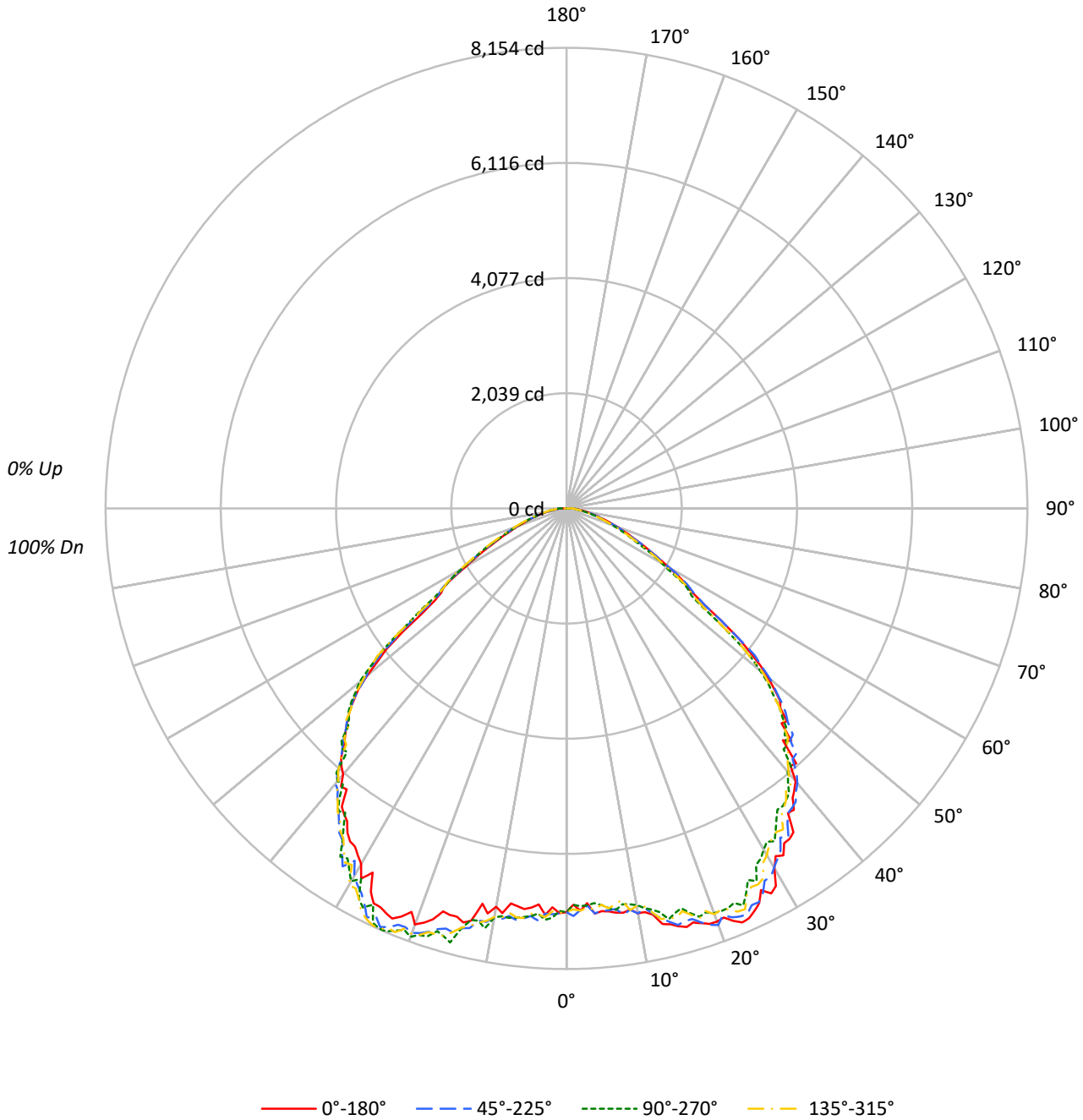
Summary

Lumens per Lamp: 20047 (1 lamp)
Luminaire Lumens: 20047.0 lumens
Efficiency: 100.0%
Efficacy: 132.8 lumens/watt
Spacing Criteria (0/90/45): 1.45 / 1.43 / 1.47
Luminous Opening: Circular (Dia: 1.33' x H: 0')
CIE Type: Direct

Input Watts (W): 150.9
Input Voltage (V): 120
Input Current (Ain): 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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CATALOG NUMBER: UHBS-24-MV-L840-U-CDL-120V

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	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	108	104	100	97	100	97	94	96	94	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	60	69	63	59	67	62	58	56
5	79	67	59	53	77	66	58	53	64	57	52	62	56	52	61	55	51	49
6	73	61	53	47	72	60	52	46	58	51	46	57	50	46	55	50	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	47	41	36	46	41	36	34
9	59	46	39	33	58	46	38	33	45	38	33	44	37	33	43	37	33	31
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	40	34	30	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	55369	55369	55369	55369
5°	55642	54813	55152	56362
10°	57276	56091	56338	57835
15°	61411	59476	60016	63810
20°	64185	62852	64629	66540
25°	67250	64292	66583	69223
30°	65810	62418	65001	68175
35°	66203	61550	63977	65029
40°	63768	61555	62174	63743
45°	58952	60264	60490	59911
50°	56101	54000	55477	57614
55°	40375	36577	38416	42648
60°	32615	30328	31681	33191
65°	25923	23752	24993	26361
70°	21511	19389	20476	21362
75°	18254	16183	17156	18057
80°	16294	14313	15228	16455
85°	17450	15023	16135	18099

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 30°
 Vertical Angle: 45°
 Luminance: 62116 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	687.2	3.4	3.4
10°-20°	2159.6	10.8	10.8
20°-30°	3581.3	17.9	17.9
30°-40°	4274.3	21.3	21.3
40°-50°	4237.4	21.1	21.1
50°-60°	2826.8	14.1	14.1
60°-70°	1416.4	7.1	7.1
70°-80°	638.6	3.2	3.2
80°-90°	225.4	1.1	1.1
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	6428.1	32.1	32.1
0°-40°	10702.4	53.4	53.4
0°-60°	17766.7	88.6	88.6
0°-90°	20047.0	100.0	100.0
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	20047.0	100.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	7146	7146	7146	7146	7146	
5°	7154	7048	7091	7247	7154	686
15°	7656	7415	7482	7955	7656	2158
25°	7867	7521	7789	8098	7867	3591
35°	7000	6508	6764	6875	7000	4298
45°	5380	5500	5521	5468	5380	4231
55°	2989	2708	2844	3157	2989	2851
65°	1414	1296	1363	1438	1414	1433
75°	610	541	573	603	610	661
85°	196	169	182	204	196	234
90°	123	117	122	124	123	



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CANDELA DISTRIBUTION (FULL):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
0°	7146.4	7146.4	7146.4	7146.4	7146.4	7146.4	7146.4	7146.4	7146.4	7146.4	7146.4
1°	7014.7	7211.9	7224.7	7019.2	7195.0	6997.8	7166.6	7113.8	7226.7	7126.7	7242.8
2°	7126.0	7102.2	7116.4	7047.2	7113.5	7139.2	7067.1	7175.5	7203.3	7253.0	7154.5
3°	6999.3	7083.1	7005.8	7035.7	7042.7	7095.9	7203.6	7087.7	7279.7	7293.3	7249.4
4°	7190.8	7247.8	7123.6	7004.3	7120.7	7123.4	7026.8	7294.4	7330.3	7188.7	7217.3
5°	7154.4	7152.2	7146.2	7047.7	7071.6	7011.8	7091.3	7266.0	7220.4	7246.9	7287.1
6°	7174.8	7139.3	7165.9	7112.7	7178.2	7057.3	7131.5	7217.9	7374.0	7271.8	7329.7
7°	7209.8	7168.6	7119.5	7161.3	6980.5	7164.2	7096.8	7287.8	7389.9	7299.8	7299.0
8°	7225.5	7289.3	7226.5	7078.6	6982.1	7004.1	7060.1	7278.1	7298.2	7317.5	7299.2
9°	7186.7	7228.3	7157.1	7093.0	7198.9	7197.5	7253.6	7272.5	7447.8	7308.8	7277.8
10°	7280.3	7330.0	7236.0	7129.6	7108.4	7185.1	7161.0	7301.0	7425.1	7351.3	7379.5
11°	7279.4	7262.5	7151.5	7204.7	7226.8	7118.0	7303.7	7414.5	7499.3	7574.7	7486.9
12°	7352.6	7397.3	7259.6	7258.9	7318.0	7316.1	7155.7	7426.4	7490.5	7464.8	7499.6
13°	7552.0	7538.8	7358.7	7336.1	7547.0	7371.8	7491.0	7556.9	7694.8	7475.6	7648.9
14°	7588.4	7505.7	7584.4	7492.5	7533.0	7414.4	7553.5	7636.9	7682.0	7646.0	7672.5
15°	7656.2	7676.7	7597.3	7415.0	7497.1	7519.3	7482.3	7538.7	7999.9	7955.3	7845.7
16°	7709.2	7661.8	7533.3	7362.4	7421.4	7412.0	7485.5	7741.3	7732.2	7881.2	7919.0
17°	7662.8	7645.6	7556.2	7491.8	7538.1	7504.7	7458.2	7752.4	7819.5	7828.3	8018.7
18°	7721.6	7719.7	7691.9	7601.9	7630.4	7621.6	7650.9	7804.7	7951.8	7965.3	7935.2
19°	7778.9	7893.3	7692.8	7564.2	7565.7	7505.5	7754.7	7854.7	8047.8	7986.7	8000.1
20°	7784.7	7837.9	7862.2	7623.0	7577.4	7712.7	7838.6	7837.4	8158.1	8070.3	8110.1
21°	7757.3	7775.0	7653.7	7634.8	7613.6	7613.9	7649.3	7865.1	8018.3	7997.3	8009.1
22°	7874.2	8012.6	7602.8	7629.8	7614.3	7697.6	7792.9	7750.0	8146.3	8056.1	8188.3
23°	7961.1	7932.0	7766.8	7584.5	7748.6	7756.6	7886.7	7869.5	8236.3	8135.7	8121.9
24°	7939.5	7986.7	7744.8	7691.9	7789.4	7746.6	7844.9	8008.1	8213.3	8143.5	8218.3
25°	7866.7	7751.7	7749.4	7520.6	7485.2	7621.4	7788.6	7844.4	8103.2	8097.5	8164.7
26°	7776.1	7924.0	7591.8	7319.3	7390.8	7518.8	7781.5	7982.2	8131.9	7802.9	8181.1
27°	7580.9	7743.9	7552.5	7405.4	7502.0	7437.1	7617.9	7797.4	7942.6	7928.5	8152.3
28°	7721.1	7508.9	7427.6	7147.4	7530.9	7294.3	7302.5	7599.6	7849.4	7823.2	7973.9
29°	7640.7	7397.5	7509.4	7088.9	7086.5	7262.3	7490.8	7612.5	7642.6	7496.1	7886.1
30°	7356.1	7379.0	7311.4	6976.9	7123.2	7054.7	7265.6	7522.0	7498.8	7620.4	7761.8
31°	7182.3	7301.6	7184.3	6883.4	6939.7	6982.8	7167.3	7196.1	7362.5	7461.8	7366.5
32°	7243.9	7221.0	7069.5	6948.5	6820.3	6924.0	7061.8	7419.5	7531.6	7307.7	7459.3
33°	7068.5	6938.1	6956.8	6792.5	6864.1	6784.0	7028.6	7242.8	7334.7	7348.9	7385.3
34°	7056.8	7057.7	6981.3	6644.4	6802.1	6909.7	6931.7	7056.7	7108.2	7083.1	7048.4
35°	6999.5	6904.8	6721.5	6507.5	6670.2	6593.1	6764.1	7076.8	6945.0	6875.3	6985.3
36°	6667.2	6674.2	6664.9	6511.3	6536.8	6552.1	6692.7	6911.2	6780.7	6657.9	7054.2
37°	6681.5	6632.0	6636.5	6459.1	6480.6	6442.9	6607.9	6656.8	6750.2	6712.5	6805.3
38°	6500.3	6598.9	6575.6	6395.5	6309.0	6298.2	6313.2	6631.7	6543.5	6526.9	6616.5
39°	6404.2	6466.9	6434.2	6229.0	6335.5	6264.5	6334.1	6420.5	6436.0	6287.7	6490.5
40°	6304.9	6291.4	6415.3	6086.1	6120.1	6106.1	6147.3	6389.3	6331.8	6302.4	6318.6
41°	6038.6	6186.3	6232.4	6057.2	5851.8	6080.8	6064.3	6121.2	6169.9	6205.6	6185.5
42°	6073.1	5915.1	6036.1	5737.7	5880.5	5849.1	5960.3	5990.3	5946.0	5806.1	5998.8
43°	5613.7	5814.9	6083.2	5727.9	5707.1	5733.4	5787.1	5864.9	5766.0	5818.1	5776.3
44°	5725.2	5733.5	5670.5	5557.3	5686.4	5599.0	5640.2	5691.0	5681.0	5725.3	5662.8



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CANDELA DISTRIBUTION (continued):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
45°	5380.3	5669.1	5657.1	5500.0	5378.7	5471.9	5520.7	5485.1	5551.6	5467.8	5515.1
46°	5422.3	5393.1	5487.0	5310.1	5345.3	5341.8	5382.7	5405.5	5379.2	5349.6	5458.9
47°	5174.0	5237.3	5367.4	5143.4	5074.1	5201.3	5242.7	5233.7	5217.2	5276.0	5201.0
48°	5084.3	5017.3	5206.8	4920.0	4838.5	4958.7	5054.3	5097.3	5084.7	5119.8	5119.7
49°	4866.0	4848.9	4940.3	4734.1	4724.8	4804.3	4873.6	4868.9	4849.0	4937.5	4931.6
50°	4654.4	4660.3	4775.7	4480.1	4519.2	4585.6	4602.6	4709.7	4535.8	4779.9	4687.3
51°	4406.1	4410.8	4467.2	4209.7	4117.7	4256.9	4287.4	4436.9	4423.0	4483.3	4487.3
52°	4101.5	4138.2	4320.0	3849.5	3773.6	3970.6	4039.3	4129.0	4069.9	4223.5	4291.5
53°	3782.7	3714.2	3835.1	3411.7	3340.3	3523.3	3622.2	3844.4	3621.8	3836.9	3827.2
54°	3384.9	3338.4	3418.9	2974.8	2988.0	3076.4	3148.2	3419.8	3294.1	3456.5	3478.2
55°	2989.0	2966.9	3004.2	2707.8	2747.5	2840.9	2844.0	2997.2	2936.2	3157.3	3130.0
56°	2729.3	2758.0	2771.3	2618.2	2608.2	2709.5	2674.2	2756.7	2720.2	2819.6	2820.2
57°	2558.4	2621.4	2620.4	2501.3	2507.6	2572.9	2607.5	2660.0	2621.1	2596.1	2617.1
58°	2435.0	2505.6	2480.6	2316.3	2334.8	2377.8	2465.9	2528.1	2492.7	2469.4	2494.3
59°	2283.2	2311.7	2318.2	2100.4	2131.1	2184.9	2239.3	2317.1	2271.3	2320.5	2382.8
60°	2104.8	2124.9	2111.9	1957.2	1965.1	2017.3	2044.5	2128.9	2090.0	2142.0	2218.9
61°	1936.5	1931.2	1952.7	1822.0	1814.6	1883.3	1901.2	1965.9	1931.5	1978.3	2035.8
62°	1795.6	1774.0	1791.8	1680.1	1676.9	1750.0	1757.5	1830.3	1798.6	1819.6	1877.5
63°	1656.8	1647.6	1650.8	1534.4	1533.7	1601.5	1616.8	1702.7	1659.3	1697.1	1730.2
64°	1530.0	1543.3	1542.3	1403.0	1411.0	1459.4	1471.9	1568.1	1519.4	1572.7	1609.7
65°	1414.0	1409.1	1413.5	1295.6	1288.5	1347.5	1363.3	1441.3	1401.0	1437.9	1484.8
66°	1304.1	1274.6	1296.0	1201.2	1198.1	1249.2	1262.4	1326.7	1282.5	1303.0	1365.9
67°	1205.6	1174.7	1190.6	1116.3	1105.8	1158.3	1160.9	1231.6	1194.0	1202.3	1251.0
68°	1113.9	1095.0	1097.9	1024.2	1011.3	1053.8	1064.2	1133.8	1096.6	1117.8	1157.3
69°	1026.6	1011.3	1024.5	930.9	925.9	958.0	979.4	1034.6	1008.8	1028.0	1066.2
70°	949.6	920.4	942.1	855.9	848.2	884.8	903.9	943.7	918.5	943.0	980.6
71°	874.9	838.0	854.3	788.1	781.3	811.5	822.0	864.8	844.3	858.6	905.0
72°	800.4	776.0	780.5	724.2	711.8	739.7	759.7	798.6	777.0	788.0	827.8
73°	734.3	713.4	721.1	656.4	646.7	669.3	691.5	733.0	713.3	725.3	761.0
74°	672.3	647.6	662.2	592.8	584.8	608.1	633.5	666.4	648.5	663.8	696.6
75°	609.8	589.0	600.5	540.6	531.7	551.0	573.1	603.1	585.5	603.2	641.7
76°	557.1	534.7	540.1	492.5	482.7	496.0	522.7	548.3	535.6	543.3	583.9
77°	502.9	483.5	489.7	447.4	437.3	445.8	473.9	499.2	487.4	490.2	530.2
78°	453.3	436.4	441.5	400.3	390.8	397.4	426.1	451.5	439.8	451.3	480.3
79°	407.5	390.7	398.3	357.7	349.9	358.9	381.2	404.9	394.5	409.9	434.1
80°	365.2	349.1	355.2	320.8	310.1	320.2	341.3	363.4	353.9	368.8	390.0
81°	325.6	310.7	317.0	284.0	273.5	281.4	303.0	325.4	317.0	330.3	351.7
82°	289.7	275.8	278.9	246.4	240.4	247.0	266.4	287.4	283.1	297.7	314.8
83°	256.9	240.8	245.5	215.7	209.0	216.7	234.0	253.5	249.4	264.0	277.9
84°	224.4	209.9	214.0	189.3	184.2	190.2	204.1	220.4	218.3	233.0	243.5
85°	196.3	187.0	188.9	169.0	164.9	169.9	181.5	194.0	192.9	203.6	212.5
86°	175.4	168.1	169.6	152.3	149.3	153.7	163.5	173.5	172.5	180.5	187.7
87°	158.0	151.5	153.8	139.0	137.0	140.5	148.1	157.1	155.1	162.4	168.0
88°	143.3	138.5	140.1	127.6	126.8	129.3	135.6	143.4	141.6	146.6	151.9
89°	130.9	127.6	128.7	121.4	122.2	122.8	126.1	131.7	130.3	134.2	138.9



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CANDELA DISTRIBUTION (continued):

	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°
90°	123.4	122.8	123.1	116.9	118.8	119.6	121.6	125.8	125.4	124.1	127.9

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CANDELA DISTRIBUTION (continued):

	330°	360°
0°	7146.4	7146.4
1°	7080.1	7014.7
2°	7122.1	7126.0
3°	7242.9	6999.3
4°	7187.3	7190.8
5°	7121.5	7154.4
6°	7253.1	7174.8
7°	7286.4	7209.8
8°	7162.2	7225.5
9°	7409.5	7186.7
10°	7307.2	7280.3
11°	7391.8	7279.4
12°	7493.1	7352.6
13°	7522.9	7552.0
14°	7622.4	7588.4
15°	7675.3	7656.2
16°	7831.5	7709.2
17°	7755.2	7662.8
18°	7838.5	7721.6
19°	7961.1	7778.9
20°	7924.2	7784.7
21°	7916.0	7757.3
22°	7995.2	7874.2
23°	8017.1	7961.1
24°	8089.7	7939.5
25°	8101.2	7866.7
26°	7988.6	7776.1
27°	7854.1	7580.9
28°	7683.9	7721.1
29°	7498.2	7640.7
30°	7637.8	7356.1
31°	7372.8	7182.3
32°	7328.8	7243.9
33°	7073.5	7068.5
34°	7065.0	7056.8
35°	6961.9	6999.5
36°	6573.6	6667.2
37°	6644.9	6681.5
38°	6530.6	6500.3
39°	6405.9	6404.2
40°	6241.1	6304.9
41°	6126.2	6038.6
42°	5942.3	6073.1
43°	5652.4	5613.7
44°	5661.8	5725.2



TEST NUMBER: P601061
 CATALOG NUMBER: UHBS-24-MV-L840-U-CDL-120V

CANDELA DISTRIBUTION (continued):

	330°	360°
45°	5392.9	5380.3
46°	5411.2	5422.3
47°	5227.8	5174.0
48°	5042.4	5084.3
49°	4851.1	4866.0
50°	4683.6	4654.4
51°	4455.7	4406.1
52°	4184.8	4101.5
53°	3878.5	3782.7
54°	3419.5	3384.9
55°	3046.3	2989.0
56°	2749.9	2729.3
57°	2582.3	2558.4
58°	2511.2	2435.0
59°	2349.2	2283.2
60°	2151.0	2104.8
61°	1985.4	1936.5
62°	1846.9	1795.6
63°	1705.8	1656.8
64°	1590.6	1530.0
65°	1473.3	1414.0
66°	1356.0	1304.1
67°	1249.0	1205.6
68°	1151.1	1113.9
69°	1064.6	1026.6
70°	981.6	949.6
71°	906.4	874.9
72°	834.1	800.4
73°	769.0	734.3
74°	696.9	672.3
75°	639.6	609.8
76°	587.0	557.1
77°	530.5	502.9
78°	478.6	453.3
79°	429.2	407.5
80°	385.6	365.2
81°	346.0	325.6
82°	310.3	289.7
83°	274.3	256.9
84°	240.6	224.4
85°	210.3	196.3
86°	186.3	175.4
87°	167.4	158.0
88°	150.4	143.3
89°	136.8	130.9



TEST NUMBER: P601061
CATALOG NUMBER: UHBS-24-MV-L840-U-CDL-120V

CANDELA DISTRIBUTION (continued):

	330°	360°
90°	127.0	123.4

(END OF REPORT)