

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P392501

Luminaire Tested: **MWL-2-18-38-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392501
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-2-18-38-UNV-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

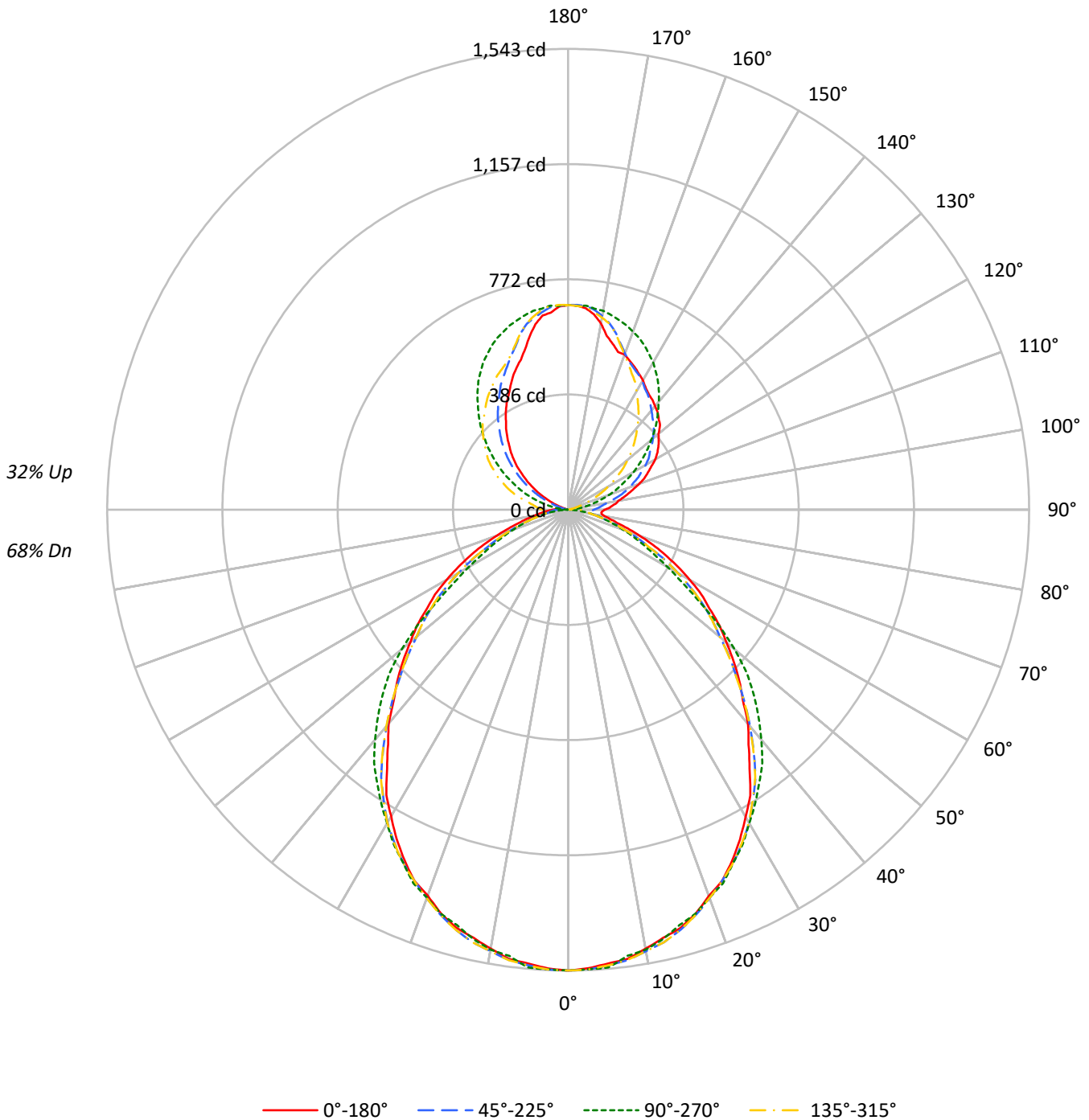
Lumens per Lamp: N/A
Luminaire Lumens: 5145.1 lumens
Efficiency: N/A
Efficacy: 86.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.18 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Direct

Input Watts (W): 59.489
Input Voltage (V): NR
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: 25 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			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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	73	73	73	68
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62	58
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	58	55	53	50
3	86	76	69	63	81	72	66	61	65	60	56	58	54	51	52	49	46	43
4	79	68	60	54	74	65	58	52	58	52	48	52	48	44	47	43	40	37
5	73	61	53	47	68	58	51	45	52	46	42	47	42	39	42	38	35	33
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	39	34	31	29
7	62	50	42	36	59	48	40	35	43	37	33	39	34	30	35	31	28	26
8	58	46	38	32	55	43	36	31	40	34	29	36	31	27	33	28	25	23
9	54	42	34	29	51	40	33	28	36	31	26	33	28	25	30	26	23	21
10	51	38	31	26	48	37	30	26	34	28	24	31	26	22	28	24	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	19930	19930	19930	19930
5°	19422	18348	19422	18348
10°	18882	16677	18882	16677
15°	18367	15187	18348	15187
20°	17586	13928	17567	13928
25°	16855	12690	16835	12690
30°	15807	11467	15781	11467
35°	14563	10343	14544	10343
40°	13437	9218	13410	9218
45°	12247	8027	12224	8027
50°	11120	6666	11096	6666
55°	10019	4948	10004	4948
60°	8926	3632	8918	3632
65°	7557	2702	7557	2702
70°	6108	1975	6117	1975
75°	4734	1389	4773	1389
80°	4204	879	3891	879
85°	4887	364	3515	364



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.1	2.8
10°-20°	408.2	7.9
20°-30°	598.8	11.6
30°-40°	678.9	13.2
40°-50°	633.6	12.3
50°-60°	497.6	9.7
60°-70°	309.8	6.0
70°-80°	149.7	2.9
80°-90°	72.6	1.4
90°-100°	66.5	1.3
100°-110°	106.6	2.1
110°-120°	182.7	3.6
120°-130°	248.1	4.8
130°-140°	283.0	5.5
140°-150°	282.0	5.5
150°-160°	245.5	4.8
160°-170°	172.4	3.4
170°-180°	64.2	1.2
0°-30°	1152.1	22.4
0°-40°	1831.0	35.6
0°-60°	2962.1	57.6
0°-90°	3494.2	67.9
90°-120°	355.7	6.9
90°-150°	1168.8	22.7
90°-180°	1651.0	32.1
0°-180°	5145.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1543	1543	1543	1543	1543	
5°	1525	1539	1525	1539	1525	145
15°	1450	1440	1449	1440	1450	407
25°	1298	1306	1296	1306	1298	596
35°	1058	1115	1057	1115	1058	664
45°	810	879	809	879	810	625
55°	577	534	576	534	577	520
65°	358	278	358	278	358	356
75°	169	132	170	132	169	187
85°	112	30	80	30	112	93
90°	122	1	50	1	122	68
95°	148	20	33	20	148	126
105°	208	96	5	96	208	221
115°	295	196	69	196	295	292
125°	368	307	169	307	368	329
135°	429	420	271	420	429	331
145°	471	524	363	524	471	297
155°	526	606	457	606	526	243
165°	575	658	556	658	575	163
175°	677	686	663	686	677	63
180°	685	685	685	685	685	



TEST NUMBER: P392501

CATALOG NUMBER: MWL-2-18-38-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0
2.5°	1537.0	1533.5	1540.8	1535.8	1540.4	1535.3	1540.8	1533.5	1537.5	1533.5	1540.8
5°	1525.2	1528.9	1531.7	1528.9	1538.9	1528.9	1531.2	1528.9	1525.2	1528.9	1531.2
7.5°	1517.4	1520.3	1521.2	1517.1	1507.1	1516.6	1520.7	1519.8	1517.4	1519.8	1520.7
10°	1492.5	1503.9	1501.1	1497.5	1495.7	1497.0	1500.7	1502.9	1492.5	1502.9	1500.7
12.5°	1468.8	1472.0	1483.4	1475.2	1471.9	1475.2	1483.4	1471.0	1467.9	1471.0	1483.4
15°	1450.2	1447.4	1456.0	1446.9	1440.0	1446.4	1455.5	1446.4	1448.7	1446.4	1455.5
17.5°	1418.3	1413.7	1422.3	1421.8	1418.1	1421.8	1421.8	1413.2	1416.9	1413.2	1421.8
20°	1376.4	1385.0	1384.1	1386.2	1382.1	1385.8	1383.5	1384.1	1374.9	1384.1	1383.5
22.5°	1345.8	1344.0	1345.8	1348.9	1353.9	1348.4	1345.2	1343.1	1344.9	1343.1	1345.2
25°	1297.5	1294.8	1306.2	1304.2	1305.6	1303.8	1305.2	1293.3	1296.0	1293.3	1305.2
27.5°	1244.7	1242.8	1259.7	1262.9	1263.7	1262.3	1258.7	1241.4	1243.2	1241.4	1258.7
30°	1187.3	1191.8	1210.9	1213.2	1212.7	1212.2	1209.5	1190.4	1185.3	1190.4	1209.5
32.5°	1134.4	1130.8	1151.7	1166.8	1164.8	1165.8	1150.3	1128.9	1132.5	1128.9	1150.3
35°	1058.3	1062.9	1093.0	1111.2	1115.2	1109.7	1091.5	1061.4	1056.9	1061.4	1091.5
37.5°	991.8	995.5	1020.1	1056.5	1067.4	1055.1	1018.6	994.0	990.4	994.0	1018.6
40°	936.2	925.3	946.3	989.5	1005.4	988.5	944.4	923.4	934.3	923.4	944.4
42.5°	865.2	860.6	873.8	921.2	943.4	920.2	872.4	858.7	863.3	858.7	872.4
45°	810.1	797.3	799.1	847.4	878.8	846.4	797.2	795.8	808.6	795.8	797.2
47.5°	750.8	734.4	732.6	772.2	811.3	771.7	730.7	733.0	749.4	733.0	730.7
50°	690.8	682.6	664.4	693.0	727.1	692.1	662.5	680.7	689.3	680.7	662.5
52.5°	638.9	627.9	607.3	624.7	634.2	623.7	606.0	626.0	637.4	626.0	606.0
55°	577.3	572.7	549.0	550.4	533.5	549.5	547.7	571.4	576.4	571.4	547.7
57.5°	529.0	522.6	487.1	471.1	449.7	470.2	485.7	521.2	528.1	521.2	485.7
60°	470.2	462.9	423.8	395.1	384.1	394.6	422.8	462.0	469.8	462.0	422.8
62.5°	414.6	406.4	364.5	327.6	323.5	327.2	363.6	405.5	414.2	405.5	363.6
65°	357.7	344.0	302.1	271.1	278.0	270.7	301.7	343.6	357.7	343.6	301.7
67.5°	306.7	285.7	253.8	225.1	235.2	225.1	253.4	285.3	306.7	285.3	253.4
70°	254.3	231.5	208.7	185.0	196.0	185.0	208.7	232.0	254.7	232.0	208.7
72.5°	207.8	186.9	167.7	151.3	160.8	150.8	167.7	187.3	208.7	187.3	167.7
75°	168.6	145.9	129.8	119.8	131.7	119.8	130.4	146.3	170.0	146.3	130.4
77.5°	142.4	121.4	97.0	93.4	104.3	93.4	97.6	119.9	140.5	119.9	97.6
80°	123.3	108.1	76.6	69.7	78.8	69.7	75.7	100.3	114.1	100.3	75.7
82.5°	113.0	103.1	69.7	48.7	52.4	48.7	63.9	85.8	94.7	85.8	63.9
85°	111.5	104.9	70.2	38.4	30.5	37.4	56.3	75.4	80.2	75.4	56.3
87.5°	114.3	113.6	76.0	37.4	9.1	30.6	48.6	67.3	64.6	67.3	48.6
90°	122.1	122.8	86.1	38.4	1.4	20.1	38.4	54.8	49.8	54.8	38.4
92.5°	136.9	133.9	96.7	42.5	8.7	9.2	30.6	44.7	42.5	44.7	30.6
95°	147.5	145.6	107.3	51.0	20.2	2.8	20.6	33.8	33.3	33.8	20.6
97.5°	161.4	156.3	117.6	68.4	35.2	6.7	11.1	23.8	26.5	23.8	11.1
100°	170.3	165.2	132.9	89.1	53.5	16.9	5.2	13.8	18.4	13.8	5.2
102.5°	188.6	181.0	151.8	108.9	73.2	30.8	8.1	7.5	9.3	7.5	8.1
105°	208.1	201.4	176.3	129.6	95.8	49.6	20.6	7.6	5.2	7.6	20.6
107.5°	228.8	223.9	197.5	151.7	120.0	72.2	37.0	19.7	12.9	19.7	37.0
110°	252.9	247.1	218.2	172.9	146.0	95.3	55.8	35.1	27.3	35.1	55.8



TEST NUMBER: P392501

CATALOG NUMBER: MWL-2-18-38-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	276.1	271.7	237.5	195.1	171.9	120.4	78.9	54.4	47.1	54.4	78.9
115°	294.7	291.5	259.7	215.8	196.1	148.8	104.5	77.0	69.2	77.0	104.5
117.5°	313.6	313.1	277.0	237.0	225.0	174.4	129.0	100.6	91.4	100.6	129.0
120°	337.2	333.4	299.6	259.1	253.4	202.3	155.0	126.6	117.4	126.6	155.0
122.5°	353.6	351.1	318.9	279.3	279.3	229.7	180.1	151.6	142.0	151.6	180.1
125°	368.5	367.5	333.4	299.6	307.3	255.3	208.0	179.1	168.6	179.1	208.0
127.5°	382.0	383.5	352.1	321.8	335.7	281.3	235.5	203.7	192.6	203.7	235.5
130°	394.5	398.4	370.0	342.0	362.7	309.7	260.1	228.3	221.9	228.3	260.1
132.5°	417.1	414.3	388.3	363.6	392.6	336.7	286.1	253.7	245.5	253.7	286.1
135°	428.7	429.7	405.1	381.5	419.6	362.7	311.6	278.8	270.6	278.8	311.6
137.5°	442.7	439.8	417.6	403.2	444.6	387.8	335.6	305.3	292.3	305.3	335.6
140°	452.8	452.4	434.0	422.5	471.6	412.4	360.2	329.5	317.3	329.5	360.2
142.5°	463.4	466.3	450.4	443.6	498.6	438.3	386.8	353.1	341.5	353.1	386.8
145°	470.7	476.9	466.8	470.1	524.2	467.3	409.9	375.7	363.2	375.7	409.9
147.5°	482.7	490.9	478.8	489.0	546.3	492.8	433.0	399.3	388.2	399.3	433.0
150°	500.0	503.8	496.6	515.0	569.0	521.2	457.6	422.8	411.8	422.8	457.6
152.5°	512.9	517.8	509.6	543.4	586.7	547.3	483.6	445.1	432.0	445.1	483.6
155°	526.5	528.4	521.7	570.9	605.6	572.8	503.4	469.6	457.1	469.6	503.4
157.5°	539.0	542.8	535.2	591.6	621.9	594.9	527.0	494.2	483.2	494.2	527.0
160°	552.5	552.5	555.5	615.7	634.6	614.3	552.1	521.1	505.8	521.1	552.1
162.5°	553.9	562.2	582.9	632.6	647.5	631.1	579.1	539.6	527.0	539.6	579.1
165°	575.2	582.5	613.8	647.5	657.6	646.1	612.4	571.4	556.4	571.4	612.4
167.5°	596.4	613.8	638.9	663.5	667.3	659.1	637.9	609.4	594.9	609.4	637.9
170°	632.6	647.5	659.1	670.7	675.9	671.1	652.9	639.8	630.7	639.8	652.9
172.5°	660.1	670.7	674.6	682.2	678.9	676.9	667.3	661.5	655.7	661.5	667.3
175°	677.0	679.9	685.1	682.7	685.6	680.3	680.8	683.2	662.6	683.2	680.8
177.5°	684.1	687.5	686.1	682.6	683.1	682.1	683.1	684.1	681.3	684.1	683.1
180°	685.1	685.1	685.1	685.1	685.1	685.1	685.1	685.1	685.1	685.1	685.1



TEST NUMBER: P392501

CATALOG NUMBER: MWL-2-18-38-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1543.0	1543.0	1543.0	1543.0	1543.0	1543.0
2.5°	1535.3	1540.4	1535.8	1540.8	1533.5	1537.0
5°	1528.9	1538.9	1528.9	1531.7	1528.9	1525.2
7.5°	1516.6	1507.1	1517.1	1521.2	1520.3	1517.4
10°	1497.0	1495.7	1497.5	1501.1	1503.9	1492.5
12.5°	1475.2	1471.9	1475.2	1483.4	1472.0	1468.8
15°	1446.4	1440.0	1446.9	1456.0	1447.4	1450.2
17.5°	1421.8	1418.1	1421.8	1422.3	1413.7	1418.3
20°	1385.8	1382.1	1386.2	1384.1	1385.0	1376.4
22.5°	1348.4	1353.9	1348.9	1345.8	1344.0	1345.8
25°	1303.8	1305.6	1304.2	1306.2	1294.8	1297.5
27.5°	1262.3	1263.7	1262.9	1259.7	1242.8	1244.7
30°	1212.2	1212.7	1213.2	1210.9	1191.8	1187.3
32.5°	1165.8	1164.8	1166.8	1151.7	1130.8	1134.4
35°	1109.7	1115.2	1111.2	1093.0	1062.9	1058.3
37.5°	1055.1	1067.4	1056.5	1020.1	995.5	991.8
40°	988.5	1005.4	989.5	946.3	925.3	936.2
42.5°	920.2	943.4	921.2	873.8	860.6	865.2
45°	846.4	878.8	847.4	799.1	797.3	810.1
47.5°	771.7	811.3	772.2	732.6	734.4	750.8
50°	692.1	727.1	693.0	664.4	682.6	690.8
52.5°	623.7	634.2	624.7	607.3	627.9	638.9
55°	549.5	533.5	550.4	549.0	572.7	577.3
57.5°	470.2	449.7	471.1	487.1	522.6	529.0
60°	394.6	384.1	395.1	423.8	462.9	470.2
62.5°	327.2	323.5	327.6	364.5	406.4	414.6
65°	270.7	278.0	271.1	302.1	344.0	357.7
67.5°	225.1	235.2	225.1	253.8	285.7	306.7
70°	185.0	196.0	185.0	208.7	231.5	254.3
72.5°	150.8	160.8	151.3	167.7	186.9	207.8
75°	119.8	131.7	119.8	129.8	145.9	168.6
77.5°	93.4	104.3	93.4	97.0	121.4	142.4
80°	69.7	78.8	69.7	76.6	108.1	123.3
82.5°	48.7	52.4	48.7	69.7	103.1	113.0
85°	37.4	30.5	38.4	70.2	104.9	111.5
87.5°	30.6	9.1	37.4	76.0	113.6	114.3
90°	20.1	1.4	38.4	86.1	122.8	122.1
92.5°	9.2	8.7	42.5	96.7	133.9	136.9
95°	2.8	20.2	51.0	107.3	145.6	147.5
97.5°	6.7	35.2	68.4	117.6	156.3	161.4
100°	16.9	53.5	89.1	132.9	165.2	170.3
102.5°	30.8	73.2	108.9	151.8	181.0	188.6
105°	49.6	95.8	129.6	176.3	201.4	208.1
107.5°	72.2	120.0	151.7	197.5	223.9	228.8
110°	95.3	146.0	172.9	218.2	247.1	252.9



TEST NUMBER: P392501

CATALOG NUMBER: MWL-2-18-38-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	120.4	171.9	195.1	237.5	271.7	276.1
115°	148.8	196.1	215.8	259.7	291.5	294.7
117.5°	174.4	225.0	237.0	277.0	313.1	313.6
120°	202.3	253.4	259.1	299.6	333.4	337.2
122.5°	229.7	279.3	279.3	318.9	351.1	353.6
125°	255.3	307.3	299.6	333.4	367.5	368.5
127.5°	281.3	335.7	321.8	352.1	383.5	382.0
130°	309.7	362.7	342.0	370.0	398.4	394.5
132.5°	336.7	392.6	363.6	388.3	414.3	417.1
135°	362.7	419.6	381.5	405.1	429.7	428.7
137.5°	387.8	444.6	403.2	417.6	439.8	442.7
140°	412.4	471.6	422.5	434.0	452.4	452.8
142.5°	438.3	498.6	443.6	450.4	466.3	463.4
145°	467.3	524.2	470.1	466.8	476.9	470.7
147.5°	492.8	546.3	489.0	478.8	490.9	482.7
150°	521.2	569.0	515.0	496.6	503.8	500.0
152.5°	547.3	586.7	543.4	509.6	517.8	512.9
155°	572.8	605.6	570.9	521.7	528.4	526.5
157.5°	594.9	621.9	591.6	535.2	542.8	539.0
160°	614.3	634.6	615.7	555.5	552.5	552.5
162.5°	631.1	647.5	632.6	582.9	562.2	553.9
165°	646.1	657.6	647.5	613.8	582.5	575.2
167.5°	659.1	667.3	663.5	638.9	613.8	596.4
170°	671.1	675.9	670.7	659.1	647.5	632.6
172.5°	676.9	678.9	682.2	674.6	670.7	660.1
175°	680.3	685.6	682.7	685.1	679.9	677.0
177.5°	682.1	683.1	682.6	686.1	687.5	684.1
180°	685.1	685.1	685.1	685.1	685.1	685.1

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