

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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: NEO-RAY

Report Number: P910997

Luminaire Tested: DFN2DIP-HX4F0-110D040US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910997
REPORT IS A COMBINATION OF REPORTS P899314 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D040US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

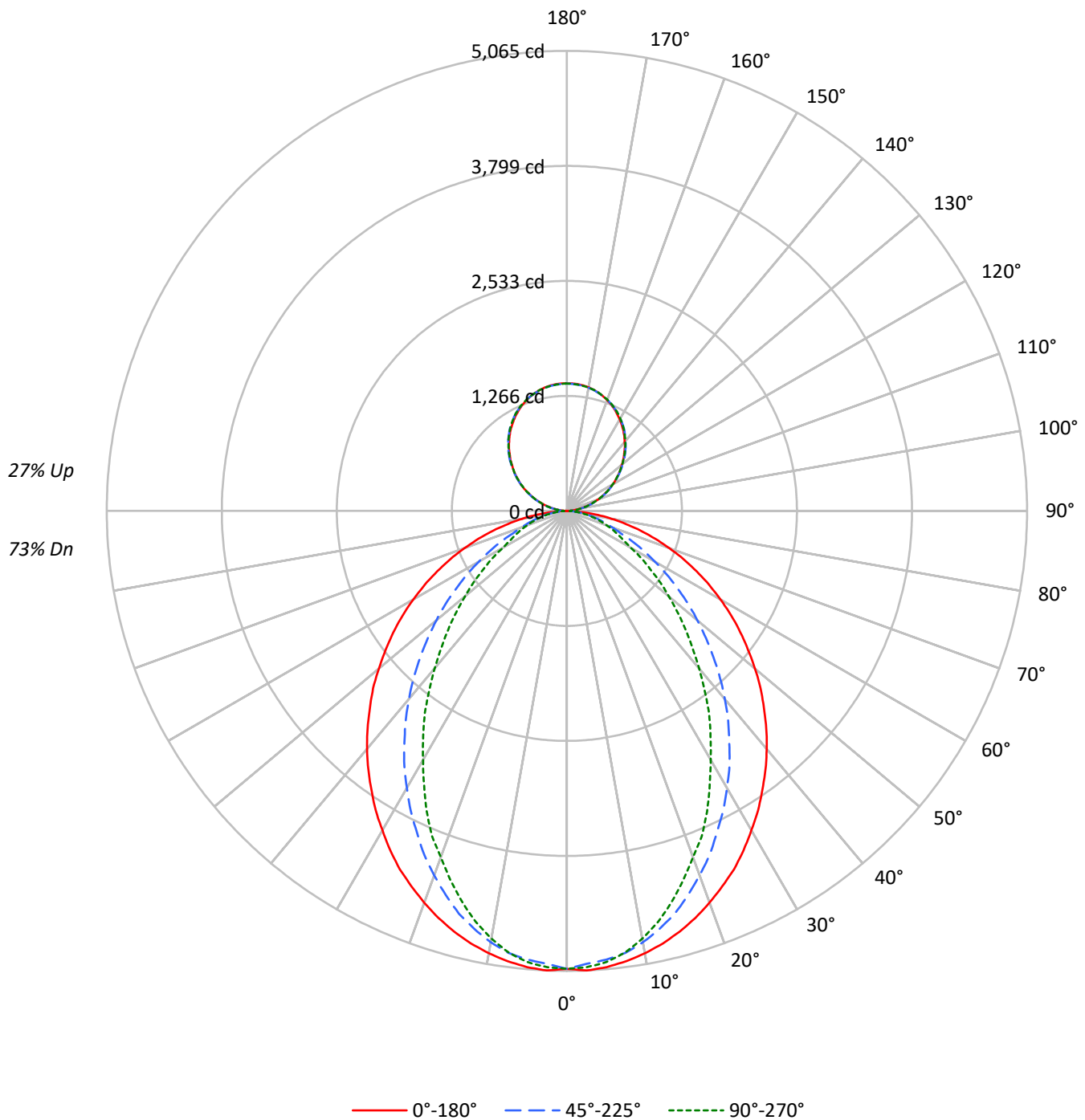
Lumens per Lamp: N/A
Luminaire Lumens: 14295.0 lumens
Efficiency: N/A
Efficacy: 105.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 136
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77
1	104	99	96	92	98	94	91	88	85	83	80	77	75	73	69	68	66
2	95	88	82	77	90	83	78	74	76	71	68	68	65	62	62	59	57
3	87	78	70	65	82	74	68	62	67	62	58	61	57	53	55	52	49
4	80	69	61	55	76	66	59	54	60	55	50	55	50	47	50	46	43
5	74	62	54	48	70	60	52	47	54	48	44	50	45	41	45	41	38
6	68	56	48	42	65	54	47	41	49	43	39	45	40	36	41	37	34
7	64	51	43	38	60	49	42	37	45	39	34	41	36	32	38	34	30
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	28
9	55	43	35	30	53	41	34	30	38	32	28	35	30	27	33	28	25
10	52	40	32	28	49	38	31	27	35	30	26	33	28	24	30	26	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3749	3749	3749
5°	3755	3690	3713
10°	3718	3618	3593
15°	3667	3499	3406
20°	3600	3334	3177
25°	3531	3150	2956
30°	3438	2961	2675
35°	3347	2757	2429
40°	3255	2547	2146
45°	3147	2313	1890
50°	3036	2077	1639
55°	2920	1825	1399
60°	2786	1562	1152
65°	2632	1293	1037
70°	2445	1043	939
75°	2210	921	854
80°	1870	773	742
85°	1307	518	559

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3147 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	472.5	3.3
10°-20°	1297.2	9.1
20°-30°	1821.2	12.7
30°-40°	1985.2	13.9
40°-50°	1824.6	12.8
50°-60°	1433.0	10.0
60°-70°	932.7	6.5
70°-80°	480.1	3.4
80°-90°	126.6	0.9
90°-100°	86.8	0.6
100°-110°	275.8	1.9
110°-120°	472.0	3.3
120°-130°	620.8	4.3
130°-140°	696.8	4.9
140°-150°	683.3	4.8
150°-160°	573.2	4.0
160°-170°	380.1	2.7
170°-180°	132.9	0.9
0°-30°	3590.9	25.1
0°-40°	5576.1	39.0
0°-60°	8833.7	61.8
0°-90°	10373.1	72.6
90°-120°	834.7	5.8
90°-150°	2835.6	19.8
90°-180°	3922.0	27.4
0°-180°	14295.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5042	5042	5042	5042	5042	
5°	5042	5019	4960	5001	4987	478
15°	4795	4745	4590	4504	4458	1351
25°	4353	4207	3906	3719	3650	2002
35°	3751	3518	3117	2829	2728	2348
45°	3066	2760	2282	1957	1848	2368
55°	2331	1976	1483	1209	1123	2083
65°	1574	1204	794	639	625	1561
75°	839	520	365	333	329	888
85°	196	100	87	87	87	225
90°	1	15	42	39	40	14
95°	62	74	76	76	74	69
105°	255	258	260	263	263	269
115°	474	480	478	477	474	469
125°	689	700	696	692	691	616
135°	891	904	907	906	902	689
145°	1082	1090	1097	1098	1094	676
155°	1237	1240	1244	1250	1246	569
165°	1346	1345	1345	1353	1347	380
175°	1400	1397	1394	1403	1396	133
180°	1403	1403	1403	1403	1403	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5041.8	5041.8	5041.8	5041.8	5041.8
2.5°	5064.6	5041.8	4991.5	5037.5	5028.3
5°	5041.8	5019.1	4959.6	5000.7	4987.2
7.5°	5000.7	4973.5	4909.7	4927.6	4904.8
10°	4946.0	4914.0	4823.0	4809.0	4781.9
12.5°	4877.7	4836.6	4713.1	4686.0	4635.6
15°	4795.4	4745.1	4590.2	4503.5	4458.0
17.5°	4699.6	4626.5	4434.8	4334.5	4261.4
20°	4590.2	4498.7	4270.6	4156.9	4056.2
22.5°	4471.6	4366.5	4101.7	3946.8	3878.5
25°	4352.9	4206.8	3905.7	3718.8	3650.1
27.5°	4211.6	4056.2	3723.1	3508.7	3403.6
30°	4061.0	3887.3	3522.3	3289.8	3166.4
32.5°	3914.9	3704.7	3331.0	3057.1	2942.8
35°	3750.7	3517.9	3116.6	2829.1	2728.4
37.5°	3591.1	3339.8	2915.7	2600.5	2486.8
40°	3422.0	3148.6	2705.6	2381.7	2263.1
42.5°	3248.7	2956.8	2496.0	2158.1	2044.3
45°	3066.3	2760.3	2281.5	1957.2	1847.8
47.5°	2892.9	2569.1	2076.3	1751.9	1651.7
50°	2701.2	2377.4	1875.4	1560.3	1464.9
52.5°	2513.9	2171.6	1683.7	1382.6	1295.9
55°	2331.3	1975.6	1482.7	1209.3	1122.6
57.5°	2144.6	1779.5	1305.1	1049.6	976.4
60°	1952.8	1587.9	1117.8	885.4	812.3
62.5°	1766.0	1401.0	958.1	739.3	702.9
65°	1574.2	1204.4	793.9	639.0	624.9
67.5°	1391.8	1021.9	639.0	561.0	547.5
70°	1200.0	844.3	529.1	483.6	465.2
72.5°	1017.5	679.7	442.5	406.1	396.9
75°	839.4	519.9	365.0	333.0	328.7
77.5°	661.7	369.4	287.6	269.2	259.9
80°	497.2	264.8	218.8	201.0	201.0
82.5°	346.6	178.1	150.6	141.4	141.4
85°	196.1	100.3	86.6	86.6	86.6
87.5°	73.1	36.3	36.3	31.9	31.9
90°	1.2	15.2	41.5	38.9	40.1
92.5°	26.2	35.5	36.8	38.0	38.0
95°	61.8	73.6	75.7	75.7	73.6
97.5°	102.8	113.8	118.4	118.4	118.4
100°	150.2	159.9	163.2	163.2	162.0
102.5°	200.1	207.3	211.9	213.1	211.9
105°	254.6	258.0	260.5	262.6	262.6
107.5°	308.7	313.8	313.8	314.6	308.7
110°	361.2	368.0	368.0	368.0	364.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	417.9	425.1	423.7	420.4	417.9
115°	473.7	480.5	478.3	477.1	473.7
117.5°	529.1	538.4	532.5	529.1	525.8
120°	585.0	594.2	585.0	585.0	581.1
122.5°	635.7	647.5	641.7	638.2	635.7
125°	689.0	699.6	696.2	692.3	691.1
127.5°	741.0	754.1	749.5	744.4	741.0
130°	789.6	804.9	802.8	800.3	795.6
132.5°	844.2	856.0	856.9	850.9	847.6
135°	891.2	904.3	906.8	905.5	902.2
137.5°	943.6	954.2	956.3	955.4	950.4
140°	989.7	1000.3	1006.2	1006.2	1001.5
142.5°	1037.1	1047.7	1051.0	1052.3	1047.7
145°	1081.9	1090.4	1097.1	1098.5	1093.8
147.5°	1122.1	1132.6	1137.7	1139.8	1135.2
150°	1163.6	1170.8	1175.4	1179.2	1175.4
152.5°	1200.4	1207.5	1213.5	1218.1	1213.5
155°	1237.1	1240.5	1244.3	1250.3	1246.4
157.5°	1268.9	1271.4	1273.5	1282.0	1276.0
160°	1297.2	1299.7	1301.0	1308.2	1303.1
162.5°	1323.4	1323.4	1324.7	1332.7	1326.8
165°	1345.9	1344.6	1344.6	1353.0	1347.1
167.5°	1366.2	1362.3	1362.3	1370.8	1364.8
170°	1381.4	1377.9	1376.7	1385.1	1377.9
172.5°	1391.9	1388.6	1387.2	1395.8	1388.6
175°	1400.4	1397.0	1394.5	1402.9	1395.8
177.5°	1405.1	1401.7	1399.1	1406.3	1399.1
180°	1402.9	1402.9	1402.9	1402.9	1402.9

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	13.63	14.69	14.37	15.44	16.36	9.60	10.66	10.35	11.42	12.33
	3H	15.32	16.27	16.08	17.04	17.98	10.81	11.76	11.57	12.52	13.47
	4H	15.94	16.83	16.72	17.61	18.57	11.27	12.16	12.05	12.94	13.89
	6H	16.38	17.20	17.17	17.99	18.95	11.61	12.43	12.39	13.21	14.18
	8H	16.51	17.29	17.31	18.10	19.07	11.70	12.48	12.50	13.29	14.26
	12H	16.58	17.32	17.38	18.12	19.12	11.76	12.50	12.56	13.30	14.29
4H	2H	13.68	14.57	14.45	15.34	16.30	10.23	11.12	11.00	11.89	12.85
	3H	15.53	16.26	16.32	17.08	18.05	11.60	12.34	12.39	13.15	14.12
	4H	16.23	16.90	17.03	17.71	18.71	12.16	12.83	12.96	13.64	14.64
	6H	16.76	17.33	17.58	18.17	19.18	12.59	13.17	13.41	14.01	15.01
	8H	16.94	17.48	17.76	18.31	19.33	12.72	13.26	13.55	14.10	15.11
	12H	17.04	17.53	17.89	18.38	19.40	12.80	13.29	13.65	14.14	15.16
8H	4H	16.21	16.75	17.04	17.59	18.60	12.45	12.99	13.28	13.83	14.84
	6H	16.79	17.23	17.64	18.11	19.13	12.98	13.43	13.84	14.30	15.32
	8H	17.01	17.40	17.87	18.27	19.31	13.18	13.57	14.04	14.44	15.48
	12H	17.16	17.50	18.02	18.37	19.46	13.31	13.66	14.17	14.52	15.61
12H	4H	16.17	16.66	17.02	17.51	18.54	12.47	12.95	13.31	13.81	14.83
	6H	16.76	17.16	17.63	18.03	19.07	13.03	13.43	13.90	14.30	15.34
	8H	17.00	17.35	17.86	18.21	19.30	13.26	13.60	14.12	14.47	15.56

END OF REPORT