

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: P903121

Luminaire Tested: DFN2DIP-PN3F0-090D040US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903121
REPORT IS A COMBINATION OF REPORTS P901057 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D040US830-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

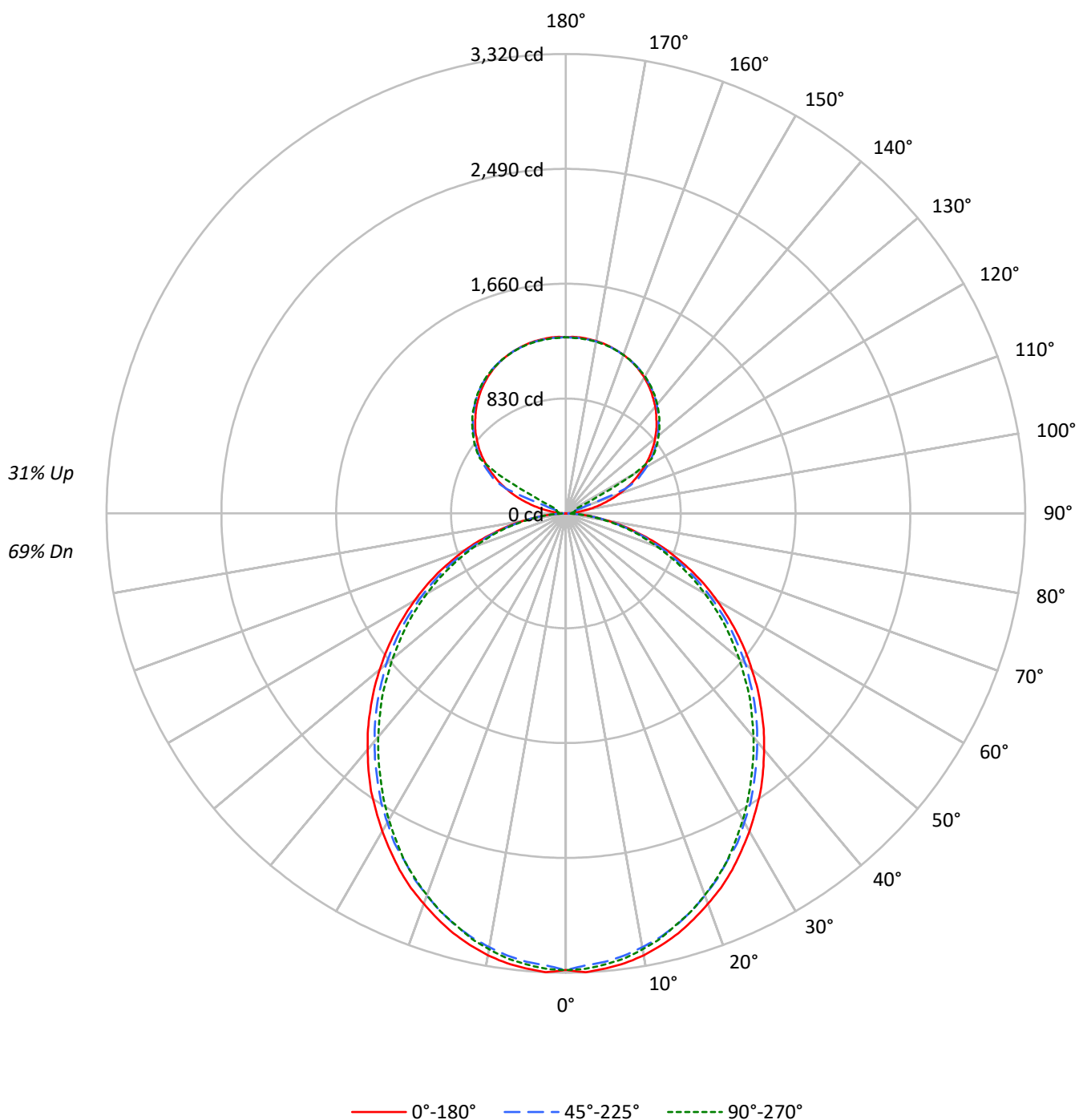
Lumens per Lamp: N/A
Luminaire Lumens: 12130.5 lumens
Efficiency: N/A
Efficacy: 98.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 123
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	112	112	112	112	106	106	106	106	94	94	94		83	83	83		74	74	74	69
1	102	98	94	90	96	92	89	86	83	80	77		74	72	70		65	64	62	58
2	93	85	79	74	88	81	75	70	72	68	64		65	61	58		57	55	53	49
3	85	75	67	61	80	71	64	59	64	59	54		57	53	49		51	48	45	41
4	78	67	58	52	73	63	56	50	57	51	46		51	46	42		46	42	39	36
5	71	59	51	45	67	57	49	43	51	45	40		46	41	37		41	37	34	31
6	66	53	45	39	62	51	43	38	46	40	35		42	36	32		37	33	30	27
7	61	48	40	34	58	46	39	33	42	36	31		38	33	29		34	30	26	24
8	57	44	36	31	54	42	35	30	38	32	28		35	29	26		31	27	24	22
9	53	40	33	27	50	39	31	27	35	29	25		32	27	23		29	25	21	19
10	50	37	30	25	47	36	29	24	32	27	22		30	25	21		27	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3858	3858	3858
5°	3862	3802	3829
10°	3829	3748	3775
15°	3770	3684	3693
20°	3692	3595	3608
25°	3614	3490	3511
30°	3517	3392	3387
35°	3424	3277	3257
40°	3311	3160	3132
45°	3198	3043	3005
50°	3074	2920	2858
55°	2944	2778	2722
60°	2797	2609	2566
65°	2637	2434	2382
70°	2432	2221	2184
75°	2150	1966	1999
80°	1808	1638	1650
85°	1275	1084	1075

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3198 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.7	2.6
10°-20°	874.1	7.2
20°-30°	1284.6	10.6
30°-40°	1492.0	12.3
40°-50°	1490.1	12.3
50°-60°	1299.3	10.7
60°-70°	960.5	7.9
70°-80°	543.4	4.5
80°-90°	145.7	1.2
90°-100°	41.9	0.3
100°-110°	156.4	1.3
110°-120°	414.8	3.4
120°-130°	688.0	5.7
130°-140°	730.8	6.0
140°-150°	679.2	5.6
150°-160°	546.1	4.5
160°-170°	351.9	2.9
170°-180°	121.1	1.0
0°-30°	2469.3	20.4
0°-40°	3961.3	32.7
0°-60°	6750.7	55.7
0°-90°	8400.3	69.2
90°-120°	613.2	5.1
90°-150°	2711.2	22.4
90°-180°	3730.0	30.7
0°-180°	12130.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3301	3301	3301	3301	3301	
5°	3301	3288	3253	3278	3272	313
15°	3142	3123	3082	3095	3079	885
25°	2844	2818	2765	2771	2765	1309
35°	2454	2422	2371	2352	2336	1532
45°	1996	1974	1926	1892	1879	1541
55°	1511	1492	1454	1416	1400	1351
65°	1019	1000	968	940	924	1007
75°	533	527	511	492	498	569
85°	130	127	124	114	111	145
90°	1	11	18	23	25	11
95°	60	29	36	40	40	71
105°	280	308	56	66	70	299
115°	529	545	568	142	76	521
125°	748	760	778	784	787	668
135°	926	941	949	958	957	715
145°	1074	1074	1089	1096	1091	672
155°	1183	1175	1186	1191	1184	545
165°	1247	1241	1244	1250	1244	352
175°	1275	1269	1270	1277	1268	121
180°	1272	1272	1272	1272	1272	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3300.7	3300.7	3300.7	3300.7	3300.7
2.5°	3319.9	3304.1	3269.1	3300.7	3294.7
5°	3300.7	3288.2	3253.3	3278.5	3272.4
7.5°	3278.5	3259.7	3224.6	3250.3	3243.9
10°	3243.9	3221.6	3183.5	3208.8	3199.4
12.5°	3196.0	3177.1	3139.1	3154.9	3148.6
15°	3142.2	3123.3	3081.8	3094.6	3078.8
17.5°	3075.4	3056.6	3015.2	3031.0	3015.2
20°	3002.4	2983.5	2939.0	2948.5	2936.0
22.5°	2929.6	2901.1	2859.6	2859.6	2853.2
25°	2843.7	2818.5	2764.7	2770.7	2764.7
27.5°	2748.5	2726.2	2685.2	2675.8	2659.9
30°	2653.5	2627.9	2580.4	2571.0	2558.2
32.5°	2551.8	2533.0	2482.1	2463.0	2450.1
35°	2453.5	2421.9	2371.0	2351.8	2336.0
37.5°	2342.4	2313.8	2262.9	2240.7	2224.9
40°	2228.2	2202.6	2151.7	2123.5	2110.7
42.5°	2117.0	2091.5	2041.0	2009.0	1990.2
45°	1996.5	1974.3	1926.5	1891.8	1879.1
47.5°	1879.1	1856.8	1805.9	1770.9	1752.1
50°	1755.1	1739.3	1694.8	1650.4	1634.6
52.5°	1634.6	1612.3	1571.2	1536.2	1514.0
55°	1511.0	1491.8	1453.7	1415.7	1399.9
57.5°	1387.0	1371.2	1329.8	1291.8	1278.9
60°	1263.1	1250.7	1206.2	1171.2	1161.8
62.5°	1142.5	1120.3	1088.6	1057.1	1044.2
65°	1019.0	999.8	968.1	939.5	923.7
67.5°	892.0	875.9	847.5	825.4	812.6
70°	774.5	761.7	733.1	710.9	698.4
72.5°	653.9	641.1	625.3	603.1	593.7
75°	533.1	527.0	510.9	492.0	498.4
77.5°	425.3	412.6	406.1	396.7	387.3
80°	317.5	314.1	307.7	298.3	292.0
82.5°	215.8	215.8	212.8	200.0	200.0
85°	130.0	127.0	123.9	114.1	111.1
87.5°	57.2	50.8	44.5	35.1	31.7
90°	0.8	11.0	18.4	23.1	24.8
92.5°	23.1	19.3	22.1	23.9	24.8
95°	59.8	29.4	35.8	40.5	39.6
97.5°	107.7	32.2	46.9	49.8	50.6
100°	163.0	36.9	52.5	59.8	61.6
102.5°	223.7	222.0	54.3	64.4	67.2
105°	279.8	307.6	56.2	66.3	69.9
107.5°	345.3	368.3	58.1	68.1	71.8
110°	407.9	427.2	161.2	69.1	72.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	466.8	483.3	467.7	70.9	73.7
115°	529.3	545.0	568.1	141.8	75.6
117.5°	583.7	602.1	617.8	486.1	244.9
120°	644.5	658.3	674.9	686.0	561.7
122.5°	696.0	710.8	729.2	734.7	735.7
125°	748.5	760.5	778.0	784.5	787.2
127.5°	796.4	809.3	823.1	832.4	833.2
130°	841.5	856.3	866.3	876.5	875.6
132.5°	887.5	899.6	909.6	917.9	917.1
135°	926.2	941.0	949.2	958.5	956.7
137.5°	966.7	977.7	987.0	996.2	993.4
140°	1006.3	1013.7	1023.8	1032.1	1027.5
142.5°	1039.5	1045.9	1057.9	1065.2	1060.6
145°	1074.5	1073.6	1089.1	1095.6	1091.0
147.5°	1104.8	1102.0	1117.7	1122.3	1118.7
150°	1134.3	1127.8	1142.6	1148.1	1143.5
152.5°	1159.1	1151.8	1165.5	1171.1	1164.7
155°	1183.1	1174.9	1185.9	1191.4	1184.0
157.5°	1202.4	1195.0	1203.4	1209.8	1202.4
160°	1219.0	1213.4	1219.0	1224.5	1218.0
162.5°	1233.7	1228.2	1232.8	1239.3	1231.0
165°	1246.6	1241.1	1243.9	1250.3	1243.9
167.5°	1256.8	1251.1	1254.1	1260.5	1252.2
170°	1265.1	1259.5	1261.3	1267.8	1259.5
172.5°	1270.5	1265.1	1267.0	1273.4	1265.1
175°	1275.1	1268.7	1270.5	1277.0	1267.8
177.5°	1277.0	1270.5	1271.5	1278.0	1269.7
180°	1272.4	1272.4	1272.4	1272.4	1272.4

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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	13.54	14.60	14.31	15.40	16.36	13.10	14.16	13.87	14.96	15.92
	3H	15.21	16.16	15.99	16.97	17.96	14.72	15.68	15.51	16.48	17.48
	4H	15.80	16.70	16.60	17.52	18.52	15.31	16.22	16.12	17.03	18.04
	6H	16.20	17.04	17.02	17.86	18.88	15.71	16.55	16.53	17.37	18.39
	8H	16.31	17.11	17.14	17.95	18.97	15.82	16.62	16.65	17.46	18.48
	12H	16.36	17.12	17.20	17.96	19.01	15.87	16.63	16.70	17.46	18.51
4H	2H	14.02	14.92	14.82	15.73	16.74	13.67	14.57	14.47	15.38	16.39
	3H	15.89	16.65	16.71	17.50	18.52	15.49	16.25	16.31	17.10	18.12
	4H	16.61	17.30	17.45	18.15	19.20	16.20	16.88	17.03	17.73	18.78
	6H	17.13	17.73	17.98	18.60	19.65	16.71	17.31	17.56	18.18	19.23
	8H	17.29	17.84	18.14	18.71	19.77	16.86	17.41	17.71	18.28	19.35
	12H	17.37	17.87	18.24	18.75	19.83	16.93	17.43	17.80	18.31	19.39
8H	4H	16.82	17.38	17.67	18.24	19.31	16.45	17.01	17.30	17.87	18.94
	6H	17.45	17.91	18.33	18.82	19.89	17.08	17.54	17.96	18.45	19.52
	8H	17.67	18.08	18.56	18.98	20.07	17.29	17.70	18.18	18.60	19.69
	12H	17.81	18.17	18.70	19.06	20.20	17.41	17.77	18.30	18.66	19.80
12H	4H	16.82	17.32	17.69	18.20	19.28	16.45	16.96	17.33	17.84	18.91
	6H	17.48	17.89	18.37	18.79	19.88	17.12	17.53	18.01	18.43	19.52
	8H	17.73	18.09	18.62	18.98	20.12	17.36	17.72	18.25	18.61	19.75