

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: P903126

Luminaire Tested: DFN2DIP-PN3F0-090D050US830-RLLFLL

Issue Date: 11/21/2024

**Test Information**

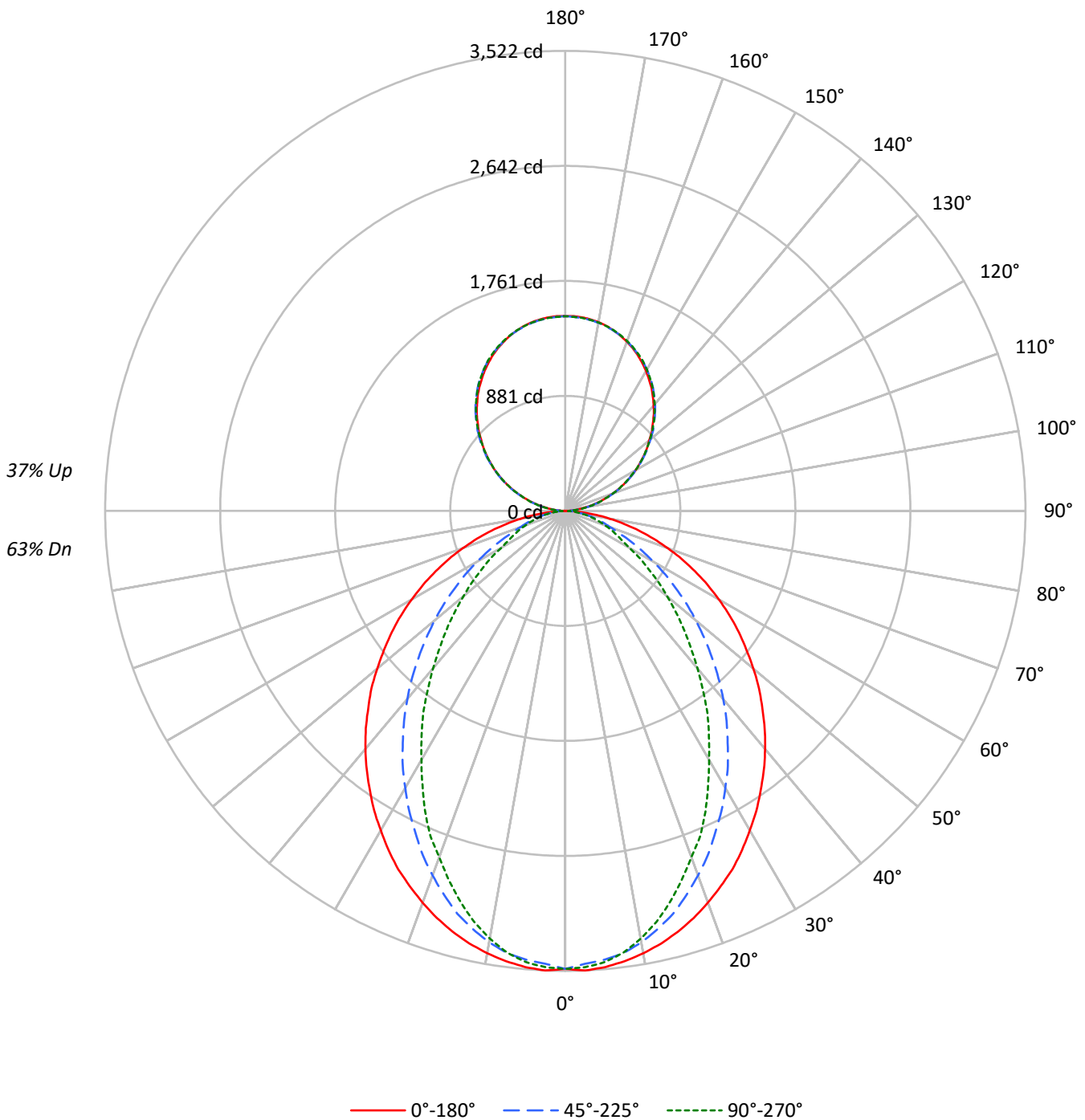
Test Method: LM-79-2019  
Report Number: P903126  
REPORT IS A COMBINATION OF REPORTS P899552 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-090D050US830-RLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11381.2 lumens  
Efficiency: N/A  
Efficacy: 87.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 130.7  
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	50	30	10	0
RCR																					
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	68	68	68	68	68	68	63
1	101	97	93	90	95	91	88	85	81	78	76	71	69	67	61	60	59	59	59	59	55
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	53	51	51	51	51	47
3	85	76	69	63	80	72	65	60	64	59	54	56	52	49	49	46	44	44	44	44	40
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38	38	38	38	35
5	72	61	53	47	68	57	50	45	51	45	41	46	41	37	40	37	34	34	34	34	31
6	67	55	47	41	62	52	45	39	47	41	36	41	37	33	37	33	30	30	30	30	27
7	62	50	42	36	58	47	40	35	42	37	32	38	33	30	34	30	27	27	27	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24	24	24	24	22
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22	22	22	22	20
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20	20	20	20	18

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	4098	4098	4098
5°	4103	4031	4057
10°	4059	3949	3924
15°	4001	3815	3718
20°	3925	3633	3466
25°	3847	3429	3223
30°	3742	3219	2915
35°	3640	2995	2645
40°	3536	2763	2335
45°	3415	2506	2055
50°	3290	2247	1781
55°	3159	1970	1518
60°	3007	1682	1248
65°	2833	1388	1121
70°	2621	1115	1012
75°	2354	976	917
80°	1968	810	789
85°	1337	527	582

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3415 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	328.6	2.9
10°-20°	902.0	7.9
20°-30°	1266.4	11.1
30°-40°	1380.5	12.1
40°-50°	1268.8	11.1
50°-60°	996.5	8.8
60°-70°	648.6	5.7
70°-80°	333.9	2.9
80°-90°	89.5	0.8
90°-100°	92.2	0.8
100°-110°	293.0	2.6
110°-120°	501.5	4.4
120°-130°	659.5	5.8
130°-140°	740.3	6.5
140°-150°	725.9	6.4
150°-160°	609.0	5.4
160°-170°	403.9	3.5
170°-180°	141.2	1.2
0°-30°	2497.0	21.9
0°-40°	3877.5	34.1
0°-60°	6142.8	54.0
0°-90°	7214.7	63.4
90°-120°	886.7	7.8
90°-150°	3012.5	26.5
90°-180°	4167.0	36.6
0°-180°	11381.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3335	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1920	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	1	16	44	41	43	11
95°	66	78	80	80	78	73
105°	270	274	277	279	279	285
115°	503	510	508	507	503	498
125°	732	743	740	736	734	654
135°	947	961	963	962	958	732
145°	1149	1158	1166	1167	1162	718
155°	1314	1318	1322	1328	1324	605
165°	1430	1428	1428	1438	1431	403
175°	1488	1484	1482	1490	1483	141
180°	1490	1490	1490	1490	1490	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3506.0	3506.0	3506.0	3506.0	3506.0
2.5°	3521.8	3506.0	3470.9	3503.0	3496.5
5°	3506.0	3490.1	3448.8	3477.3	3467.9
7.5°	3477.3	3458.5	3414.1	3426.5	3410.7
10°	3439.3	3417.1	3353.8	3344.0	3325.2
12.5°	3391.8	3363.3	3277.4	3258.6	3223.5
15°	3334.6	3299.7	3191.9	3131.6	3100.0
17.5°	3268.0	3217.2	3083.8	3014.2	2963.4
20°	3191.9	3128.3	2969.7	2890.6	2820.6
22.5°	3109.4	3036.4	2852.2	2744.5	2697.1
25°	3027.0	2925.3	2715.9	2586.0	2538.2
27.5°	2928.7	2820.6	2589.0	2439.9	2366.8
30°	2824.0	2703.1	2449.3	2287.7	2201.9
32.5°	2722.3	2576.2	2316.3	2125.8	2046.4
35°	2608.2	2446.3	2167.2	1967.3	1897.2
37.5°	2497.1	2322.4	2027.5	1808.4	1729.3
40°	2379.6	2189.4	1881.4	1656.2	1573.8
42.5°	2259.1	2056.2	1735.6	1500.7	1421.5
45°	2132.2	1919.5	1586.5	1360.9	1284.9
47.5°	2011.7	1786.5	1443.8	1218.2	1148.6
50°	1878.4	1653.1	1304.1	1085.0	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.2
55°	1621.2	1373.8	1031.0	840.9	780.6
57.5°	1491.3	1237.5	907.6	729.8	679.0
60°	1357.9	1104.1	777.3	615.7	564.9
62.5°	1228.0	974.2	666.2	514.1	488.8
65°	1094.7	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.6	472.6	307.6	282.4	276.1
75°	583.7	361.6	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.9	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
90°	1.3	16.2	44.0	41.4	42.7
92.5°	27.9	37.7	39.1	40.4	40.4
95°	65.6	78.2	80.4	80.4	78.2
97.5°	109.1	120.8	125.8	125.8	125.8
100°	159.5	169.8	173.4	173.4	172.1
102.5°	212.5	220.2	225.1	226.5	225.1
105°	270.5	274.1	276.8	279.0	279.0
107.5°	328.0	333.4	333.4	334.3	328.0
110°	383.7	391.0	391.0	391.0	387.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	443.9	451.6	450.3	446.7	443.9
115°	503.2	510.5	508.2	506.9	503.2
117.5°	562.1	572.0	565.7	562.1	558.6
120°	621.4	631.3	621.4	621.4	617.4
122.5°	675.3	688.0	681.6	678.1	675.3
125°	732.0	743.2	739.6	735.6	734.2
127.5°	787.2	801.2	796.3	790.8	787.2
130°	839.0	855.1	852.8	850.2	845.2
132.5°	896.9	909.5	910.4	904.1	900.5
135°	946.8	960.6	963.4	962.1	958.5
137.5°	1002.5	1013.7	1016.0	1015.0	1009.7
140°	1051.4	1062.7	1068.9	1068.9	1064.0
142.5°	1101.7	1113.0	1116.6	1117.9	1113.0
145°	1149.4	1158.4	1165.5	1167.0	1162.0
147.5°	1192.1	1203.3	1208.7	1211.0	1206.0
150°	1236.1	1243.8	1248.7	1252.7	1248.7
152.5°	1275.3	1282.9	1289.1	1294.1	1289.1
155°	1314.3	1317.9	1321.9	1328.2	1324.2
157.5°	1348.0	1350.7	1352.9	1362.0	1355.7
160°	1378.1	1380.8	1382.1	1389.8	1384.4
162.5°	1406.0	1406.0	1407.3	1415.9	1409.6
165°	1429.8	1428.4	1428.4	1437.5	1431.2
167.5°	1451.3	1447.3	1447.3	1456.3	1450.0
170°	1467.5	1464.0	1462.6	1471.6	1464.0
172.5°	1478.8	1475.2	1473.9	1482.8	1475.2
175°	1487.8	1484.1	1481.5	1490.4	1482.8
177.5°	1492.7	1489.1	1486.4	1494.0	1486.4
180°	1490.4	1490.4	1490.4	1490.4	1490.4



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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	13.17	14.13	14.02	14.98	16.05	9.14	10.09	9.98	10.95	12.02
	3H	14.86	15.71	15.71	16.57	17.67	10.33	11.18	11.19	12.05	13.15
	4H	15.47	16.27	16.34	17.14	18.25	10.78	11.59	11.65	12.46	13.57
	6H	15.89	16.63	16.77	17.51	18.63	11.11	11.85	11.99	12.73	13.85
	8H	16.02	16.72	16.91	17.62	18.74	11.20	11.90	12.09	12.80	13.92
	12H	16.08	16.75	16.97	17.64	18.79	11.24	11.91	12.14	12.80	13.95
4H	2H	13.21	14.01	14.08	14.88	15.99	9.75	10.55	10.62	11.43	12.53
	3H	15.04	15.71	15.92	16.61	17.74	11.10	11.77	11.99	12.68	13.80
	4H	15.73	16.34	16.63	17.24	18.39	11.65	12.26	12.55	13.16	14.31
	6H	16.25	16.77	17.16	17.70	18.85	12.07	12.59	12.98	13.52	14.67
	8H	16.42	16.91	17.34	17.83	18.99	12.20	12.69	13.11	13.61	14.77
	12H	16.52	16.96	17.45	17.90	19.07	12.26	12.70	13.20	13.64	14.81
8H	4H	15.71	16.20	16.62	17.12	18.28	11.94	12.42	12.85	13.34	14.51
	6H	16.27	16.67	17.21	17.64	18.80	12.45	12.85	13.39	13.82	14.98
	8H	16.48	16.84	17.43	17.79	18.98	12.64	12.99	13.59	13.95	15.13
	12H	16.62	16.94	17.58	17.88	19.11	12.76	13.07	13.71	14.02	15.25
12H	4H	15.66	16.10	16.60	17.04	18.21	11.94	12.38	12.88	13.32	14.49
	6H	16.25	16.60	17.20	17.56	18.74	12.50	12.86	13.45	13.81	14.99
	8H	16.47	16.78	17.42	17.73	18.96	12.71	13.02	13.66	13.97	15.20