

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: P908748

Luminaire Tested: DFN2DIP-PN4F0-080D050US840-FLLFLL

Issue Date: 11/21/2024

**Test Information**

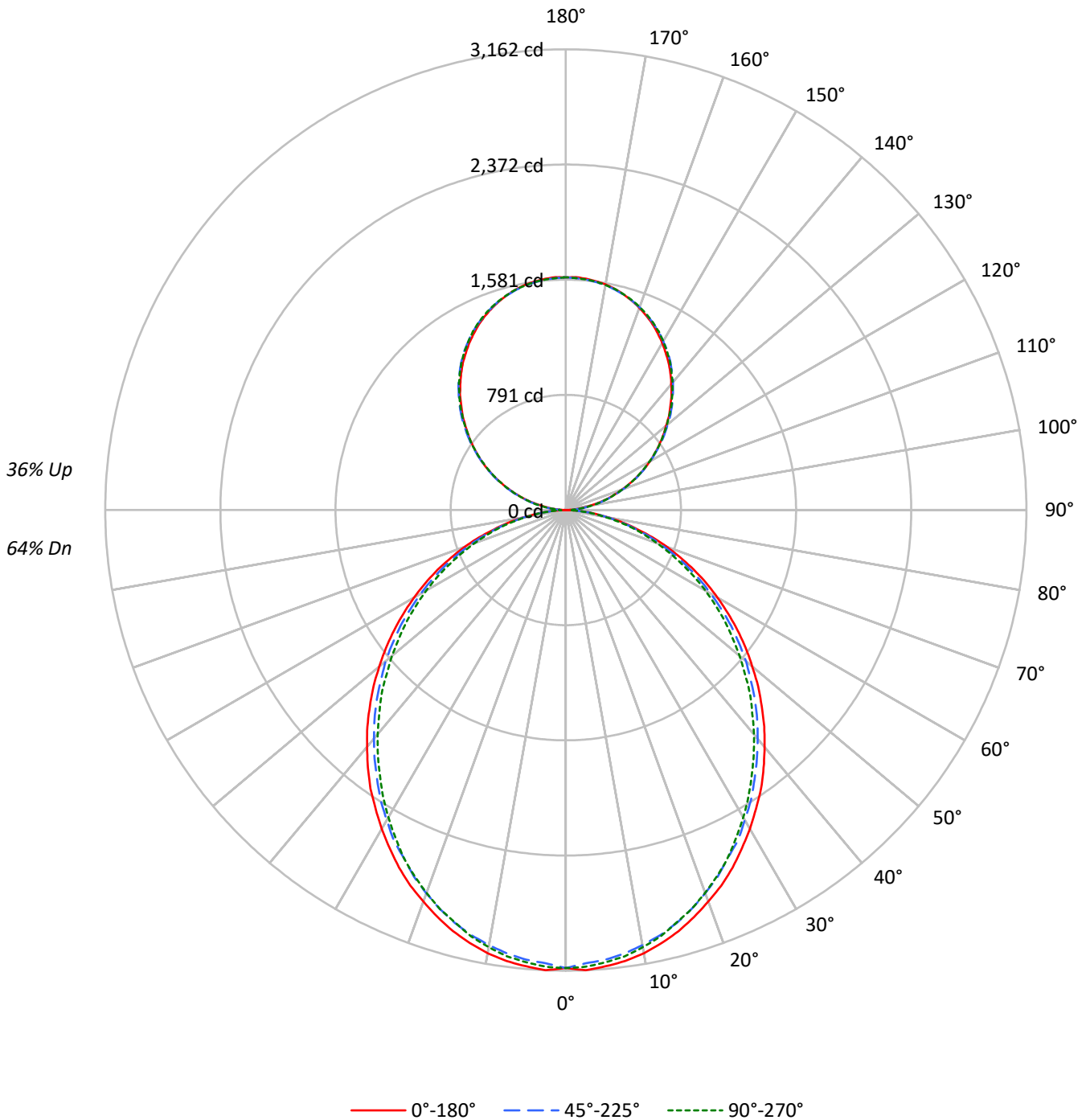
Test Method: LM-79-2019  
Report Number: P908748  
REPORT IS A COMBINATION OF REPORTS P899635 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-080D050US840-FLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12466.8 lumens  
Efficiency: N/A  
Efficacy: 108.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 114.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
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	111	111	111	111	104	104	104	104	91	91	91	80	80	80	69	69	69	69	69	69	64
1	101	97	93	89	95	91	87	84	80	77	75	70	68	66	61	60	58	61	60	58	54
2	92	84	78	73	86	79	74	69	70	66	62	62	58	56	54	51	49	54	51	49	45
3	84	74	67	61	79	70	63	58	62	57	52	55	50	47	48	45	42	48	45	42	38
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36	43	39	36	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	35	32	38	35	32	29
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28	35	31	28	25
7	60	48	40	34	56	45	38	32	40	34	30	36	31	27	32	28	25	32	28	25	22
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20	27	23	20	18
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	25	21	18	16

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

	0°	45°	90°
0°	2295	2295	2295
5°	2298	2263	2278
10°	2280	2233	2248
15°	2246	2196	2200
20°	2201	2146	2151
25°	2156	2085	2095
30°	2099	2028	2022
35°	2046	1962	1946
40°	1980	1894	1873
45°	1914	1827	1799
50°	1842	1756	1713
55°	1767	1674	1634
60°	1682	1576	1544
65°	1590	1476	1437
70°	1472	1353	1322
75°	1308	1206	1217
80°	1112	1020	1015
85°	804	696	679

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1914 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	295.9	2.4
10°-20°	832.5	6.7
20°-30°	1223.4	9.8
30°-40°	1420.9	11.4
40°-50°	1419.1	11.4
50°-60°	1237.5	9.9
60°-70°	914.7	7.3
70°-80°	517.6	4.2
80°-90°	141.2	1.1
90°-100°	98.8	0.8
100°-110°	314.0	2.5
110°-120°	537.3	4.3
120°-130°	706.6	5.7
130°-140°	793.2	6.4
140°-150°	777.8	6.2
150°-160°	652.5	5.2
160°-170°	432.7	3.5
170°-180°	151.2	1.2
0°-30°	2351.8	18.9
0°-40°	3772.7	30.3
0°-60°	6429.3	51.6
0°-90°	8002.7	64.2
90°-120°	950.1	7.6
90°-150°	3227.7	25.9
90°-180°	4464.0	35.8
0°-180°	12466.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3144	3144	3144	3144	3144	
5°	3144	3132	3098	3122	3117	298
15°	2992	2975	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2337	2306	2258	2240	2225	1459
45°	1902	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1287
65°	970	952	922	895	880	959
75°	508	502	487	469	475	542
85°	124	121	118	109	106	138
90°	1	17	47	44	46	12
95°	70	84	86	86	84	78
105°	290	294	297	299	299	306
115°	539	547	544	543	539	533
125°	784	796	792	788	787	701
135°	1014	1029	1032	1031	1027	784
145°	1232	1241	1249	1250	1245	769
155°	1408	1412	1416	1423	1419	648
165°	1532	1530	1530	1540	1533	432
175°	1594	1590	1587	1597	1589	151
180°	1597	1597	1597	1597	1597	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3143.5	3143.5	3143.5	3143.5	3143.5
2.5°	3161.8	3146.7	3113.4	3143.5	3137.8
5°	3143.5	3131.7	3098.4	3122.4	3116.6
7.5°	3122.4	3104.4	3071.1	3095.4	3089.4
10°	3089.4	3068.2	3031.9	3056.0	3047.1
12.5°	3043.8	3025.9	2989.6	3004.7	2998.6
15°	2992.5	2974.6	2935.1	2947.3	2932.2
17.5°	2929.0	2911.0	2871.6	2886.7	2871.6
20°	2859.4	2841.5	2799.1	2808.1	2796.2
22.5°	2790.2	2762.9	2723.4	2723.4	2717.3
25°	2708.4	2684.3	2633.0	2638.8	2633.0
27.5°	2617.6	2596.5	2557.3	2548.3	2533.2
30°	2527.2	2502.7	2457.6	2448.6	2436.4
32.5°	2430.3	2412.4	2363.9	2345.6	2333.5
35°	2336.6	2306.5	2258.1	2239.8	2224.7
37.5°	2230.8	2203.5	2155.2	2133.9	2118.9
40°	2122.1	2097.7	2049.3	2022.4	2010.1
42.5°	2016.3	1991.9	1943.8	1913.3	1895.4
45°	1901.5	1880.3	1834.7	1801.7	1789.6
47.5°	1789.6	1768.4	1719.9	1686.6	1668.6
50°	1671.5	1656.5	1614.1	1571.8	1556.7
52.5°	1556.7	1535.5	1496.4	1463.1	1441.9
55°	1439.0	1420.7	1384.5	1348.3	1333.1
57.5°	1321.0	1306.0	1266.5	1230.2	1218.0
60°	1203.0	1191.1	1148.7	1115.4	1106.4
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.5	952.2	922.0	894.7	879.7
67.5°	849.5	834.1	807.2	786.1	773.9
70°	737.6	725.4	698.2	677.0	665.1
72.5°	622.8	610.7	595.5	574.4	565.4
75°	507.7	501.9	486.6	468.6	474.6
77.5°	405.1	392.8	386.8	377.8	368.8
80°	302.5	299.2	293.2	284.2	278.0
82.5°	205.6	205.6	202.7	190.5	190.5
85°	123.8	120.9	118.1	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	1.4	17.4	47.2	44.3	45.7
92.5°	29.9	40.4	41.9	43.3	43.3
95°	70.3	83.8	86.1	86.1	83.8
97.5°	116.9	129.5	134.8	134.8	134.8
100°	170.9	182.0	185.8	185.8	184.4
102.5°	227.7	235.9	241.2	242.7	241.2
105°	289.8	293.7	296.6	298.9	298.9
107.5°	351.4	357.2	357.2	358.2	351.4
110°	411.1	418.9	418.9	418.9	415.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	475.6	483.8	482.4	478.6	475.6
115°	539.2	546.9	544.5	543.1	539.2
117.5°	602.3	612.9	606.1	602.3	598.4
120°	665.8	676.4	665.8	665.8	661.5
122.5°	723.6	737.1	730.3	726.5	723.6
125°	784.3	796.3	792.4	788.1	786.7
127.5°	843.4	858.4	853.1	847.3	843.4
130°	898.9	916.2	913.7	910.9	905.5
132.5°	961.0	974.4	975.4	968.7	964.8
135°	1014.4	1029.3	1032.2	1030.8	1026.9
137.5°	1074.1	1086.1	1088.5	1087.5	1081.8
140°	1126.5	1138.6	1145.3	1145.3	1140.0
142.5°	1180.4	1192.6	1196.4	1197.8	1192.6
145°	1231.5	1241.1	1248.8	1250.3	1245.0
147.5°	1277.3	1289.3	1295.1	1297.5	1292.1
150°	1324.4	1332.6	1337.9	1342.2	1337.9
152.5°	1366.3	1374.5	1381.2	1386.5	1381.2
155°	1408.2	1412.0	1416.3	1423.1	1418.8
157.5°	1444.3	1447.1	1449.6	1459.3	1452.5
160°	1476.5	1479.5	1480.9	1489.0	1483.3
162.5°	1506.4	1506.4	1507.8	1517.0	1510.3
165°	1532.0	1530.5	1530.5	1540.1	1533.4
167.5°	1555.0	1550.6	1550.6	1560.3	1553.6
170°	1572.4	1568.5	1567.1	1576.7	1568.5
172.5°	1584.4	1580.5	1579.1	1588.7	1580.5
175°	1594.1	1590.1	1587.3	1596.9	1588.7
177.5°	1599.3	1595.5	1592.6	1600.7	1592.6
180°	1596.9	1596.9	1596.9	1596.9	1596.9



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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	11.38	12.38	12.20	13.23	14.29	10.94	11.94	11.76	12.79	13.84
	3H	13.05	13.96	13.89	14.81	15.89	12.57	13.47	13.41	14.33	15.41
	4H	13.65	14.50	14.50	15.37	16.46	13.16	14.01	14.02	14.88	15.97
	6H	14.06	14.85	14.93	15.72	16.82	13.57	14.35	14.43	15.22	16.33
	8H	14.17	14.92	15.04	15.81	16.91	13.68	14.43	14.55	15.32	16.42
	12H	14.22	14.94	15.10	15.82	16.95	13.72	14.44	14.60	15.32	16.45
4H	2H	11.86	12.71	12.72	13.58	14.67	11.51	12.36	12.37	13.22	14.31
	3H	13.74	14.45	14.61	15.35	16.46	13.34	14.05	14.21	14.95	16.05
	4H	14.46	15.11	15.35	16.00	17.14	14.04	14.69	14.93	15.59	16.72
	6H	14.99	15.55	15.89	16.47	17.60	14.56	15.13	15.46	16.04	17.18
	8H	15.14	15.67	16.04	16.58	17.73	14.71	15.24	15.61	16.15	17.30
	12H	15.22	15.70	16.15	16.63	17.78	14.78	15.26	15.70	16.19	17.34
8H	4H	14.67	15.20	15.57	16.11	17.26	14.30	14.82	15.20	15.74	16.88
	6H	15.31	15.75	16.24	16.70	17.85	14.94	15.37	15.86	16.32	17.47
	8H	15.54	15.92	16.47	16.87	18.03	15.15	15.54	16.09	16.48	17.65
	12H	15.68	16.01	16.62	16.95	18.17	15.27	15.61	16.21	16.55	17.77
12H	4H	14.66	15.14	15.58	16.07	17.22	14.30	14.77	15.22	15.70	16.86
	6H	15.34	15.73	16.28	16.67	17.84	14.98	15.36	15.92	16.31	17.47
	8H	15.59	15.93	16.53	16.87	18.09	15.22	15.56	16.16	16.50	17.71