

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: P905758

Luminaire Tested: DFN2DIP-PN3F0-050D090US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

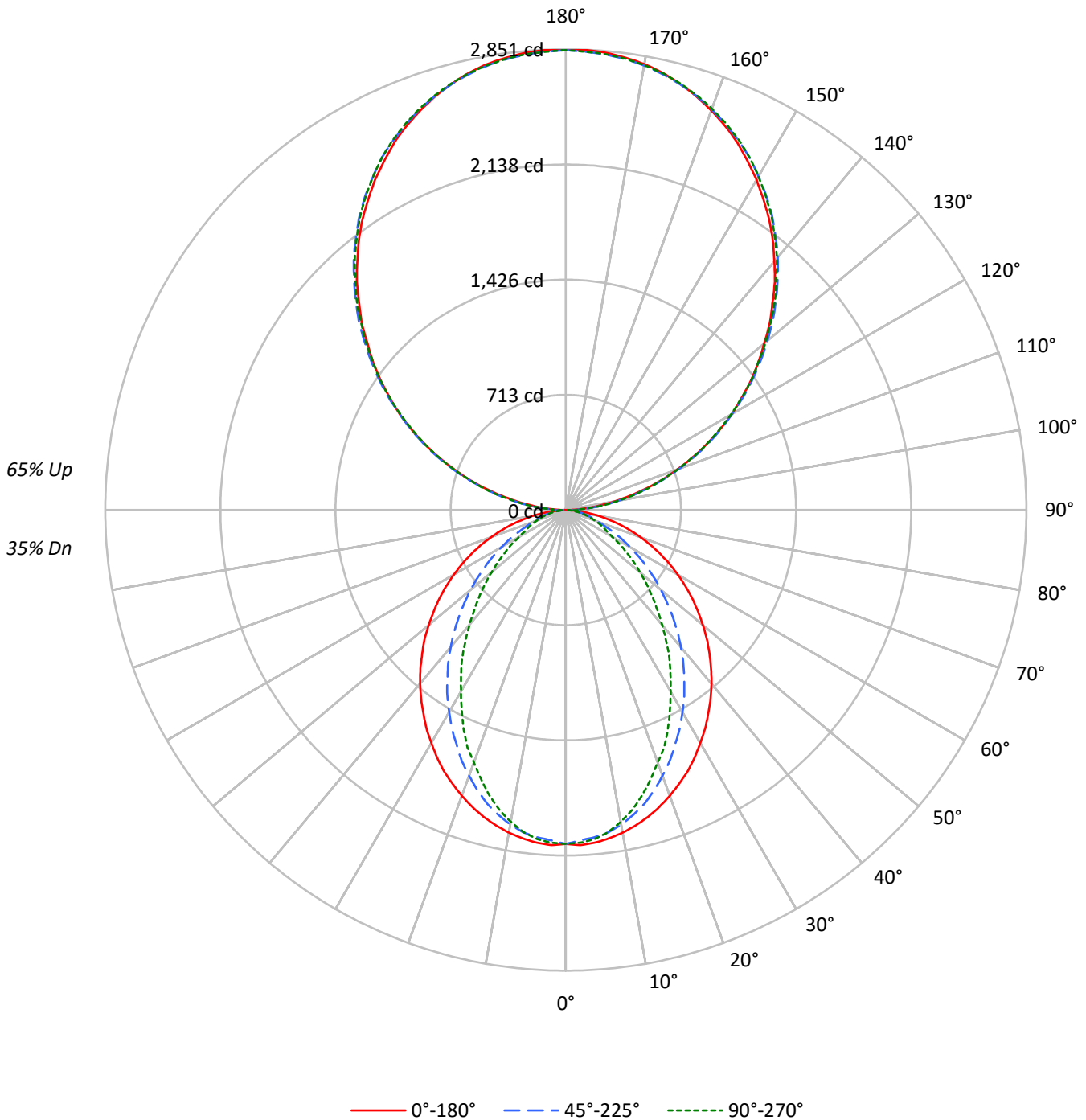
Test Method: LM-79-2019  
Report Number: P905758  
REPORT IS A COMBINATION OF REPORTS P899600 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-050D090US835-RLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12215.0 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: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 116.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9613  
Total Harmonic Distortion (THDi): 0.083  
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				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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	42	42	42	35				35
1	95	91	87	84	85	82	79	76	66	64	62	51	50	49	38	37	36	30				30
2	86	79	74	69	78	72	67	63	58	55	52	45	43	41	34	32	31	26				26
3	79	70	63	58	71	64	58	53	52	47	44	40	38	35	30	28	27	22				22
4	72	62	55	49	65	57	50	45	46	41	38	36	33	30	27	25	23	19				19
5	67	55	48	42	60	51	44	39	41	36	33	33	29	26	25	22	21	17				17
6	61	50	42	37	55	45	39	34	37	32	29	30	26	23	22	20	18	15				15
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	21	18	16	14				14
8	53	41	33	28	48	37	31	26	31	26	22	25	21	19	19	16	15	12				12
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	17	15	13	11				11
10	46	34	27	23	41	31	25	21	26	21	18	21	18	15	16	14	12	10				10

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

	0°	45°	90°
0°	2416	2416	2416
5°	2418	2376	2392
10°	2393	2327	2313
15°	2358	2249	2191
20°	2313	2141	2043
25°	2267	2021	1900
30°	2206	1898	1718
35°	2146	1765	1559
40°	2084	1628	1376
45°	2013	1477	1211
50°	1939	1324	1050
55°	1862	1161	895
60°	1773	991	735
65°	1670	818	661
70°	1545	657	596
75°	1388	576	540
80°	1160	478	465
85°	789	311	343

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2819 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	193.7	1.6
10°-20°	531.7	4.4
20°-30°	746.5	6.1
30°-40°	813.7	6.7
40°-50°	747.9	6.1
50°-60°	587.3	4.8
60°-70°	382.3	3.1
70°-80°	196.8	1.6
80°-90°	58.3	0.5
90°-100°	176.1	1.4
100°-110°	559.6	4.6
110°-120°	957.7	7.8
120°-130°	1259.5	10.3
130°-140°	1413.8	11.6
140°-150°	1386.4	11.3
150°-160°	1163.0	9.5
160°-170°	771.2	6.3
170°-180°	269.6	2.2
0°-30°	1471.8	12.0
0°-40°	2285.5	18.7
0°-60°	3620.7	29.6
0°-90°	4258.1	34.9
90°-120°	1693.5	13.9
90°-150°	5753.1	47.1
90°-180°	7957.0	65.1
0°-180°	12215.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2066	2066	2066	2066	2066	
5°	2066	2057	2033	2050	2044	196
15°	1966	1945	1881	1846	1827	554
25°	1784	1724	1601	1524	1496	821
35°	1537	1442	1277	1160	1118	962
45°	1257	1131	935	802	757	971
55°	956	810	608	496	460	854
65°	645	494	325	262	256	640
75°	344	213	150	136	135	364
85°	80	41	36	36	36	92
90°	3	31	84	79	82	12
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2066.5	2066.5	2066.5	2066.5	2066.5
2.5°	2075.8	2066.5	2045.9	2064.7	2060.9
5°	2066.5	2057.2	2032.8	2049.6	2044.1
7.5°	2049.6	2038.5	2012.3	2019.7	2010.3
10°	2027.2	2014.1	1976.8	1971.1	1959.9
12.5°	1999.2	1982.4	1931.8	1920.7	1900.0
15°	1965.5	1944.9	1881.4	1845.9	1827.2
17.5°	1926.2	1896.3	1817.7	1776.6	1746.6
20°	1881.4	1843.9	1750.4	1703.8	1662.5
22.5°	1832.8	1789.7	1681.2	1617.7	1589.7
25°	1784.1	1724.2	1600.8	1524.2	1496.0
27.5°	1726.2	1662.5	1526.0	1438.1	1395.1
30°	1664.5	1593.3	1443.7	1348.4	1297.8
32.5°	1604.6	1518.5	1365.3	1253.0	1206.2
35°	1537.3	1441.9	1277.4	1159.5	1118.3
37.5°	1471.8	1368.9	1195.1	1065.9	1019.3
40°	1402.6	1290.5	1108.9	976.2	927.6
42.5°	1331.6	1211.9	1023.0	884.5	837.9
45°	1256.8	1131.4	935.1	802.2	757.3
47.5°	1185.7	1053.0	851.0	718.1	677.0
50°	1107.2	974.4	768.7	639.5	600.4
52.5°	1030.4	890.1	690.1	566.7	531.2
55°	955.6	809.7	607.7	495.6	460.1
57.5°	879.0	729.4	534.9	430.2	400.2
60°	800.4	650.8	458.1	362.9	332.9
62.5°	723.8	574.2	392.7	303.0	288.1
65°	645.2	493.7	325.4	261.9	256.2
67.5°	570.4	418.9	261.9	230.0	224.4
70°	491.9	346.0	216.9	198.2	190.7
72.5°	417.1	278.6	181.4	166.5	162.7
75°	344.1	213.1	149.6	136.5	134.7
77.5°	271.2	151.4	117.9	110.3	106.5
80°	203.8	108.5	89.7	82.3	82.3
82.5°	142.1	73.0	61.7	57.9	57.9
85°	80.4	41.1	35.5	35.5	35.5
87.5°	30.0	14.9	14.9	13.1	13.1
90°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4



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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	8.57	9.29	9.65	10.36	11.84	4.53	5.25	5.61	6.33	7.81
	3H	10.23	10.87	11.32	11.96	13.45	5.71	6.35	6.80	7.44	8.93
	4H	10.83	11.44	11.93	12.53	14.03	6.15	6.76	7.25	7.85	9.34
	6H	11.24	11.80	12.35	12.89	14.40	6.46	7.02	7.57	8.11	9.62
	8H	11.36	11.89	12.47	13.00	14.50	6.54	7.08	7.66	8.18	9.69
	12H	11.42	11.92	12.53	13.02	14.55	6.58	7.08	7.70	8.19	9.71
4H	2H	8.57	9.18	9.68	10.27	11.77	5.11	5.72	6.22	6.81	8.31
	3H	10.38	10.89	11.50	12.00	13.51	6.44	6.95	7.56	8.07	9.58
	4H	11.06	11.53	12.18	12.64	14.17	6.98	7.45	8.10	8.55	10.08
	6H	11.57	11.97	12.69	13.09	14.62	7.39	7.79	8.51	8.92	10.44
	8H	11.74	12.11	12.86	13.23	14.77	7.51	7.88	8.64	9.00	10.54
	12H	11.82	12.16	12.97	13.29	14.84	7.57	7.91	8.71	9.04	10.58
8H	4H	11.02	11.39	12.15	12.51	14.05	7.25	7.62	8.38	8.74	10.28
	6H	11.58	11.88	12.72	13.05	14.58	7.76	8.06	8.90	9.23	10.76
	8H	11.79	12.06	12.94	13.20	14.76	7.94	8.21	9.09	9.35	10.91
	12H	11.92	12.15	13.07	13.29	14.89	8.05	8.29	9.21	9.43	11.02
12H	4H	10.97	11.31	12.11	12.44	13.98	7.25	7.59	8.39	8.72	10.26
	6H	11.55	11.82	12.70	12.96	14.52	7.80	8.07	8.96	9.21	10.77
	8H	11.76	12.00	12.92	13.14	14.73	8.00	8.24	9.16	9.38	10.97