

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: P925278

Luminaire Tested: DFN2DIP-PN4F0-120D090US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925278
REPORT IS A COMBINATION OF REPORTS P899716 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D090US950-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

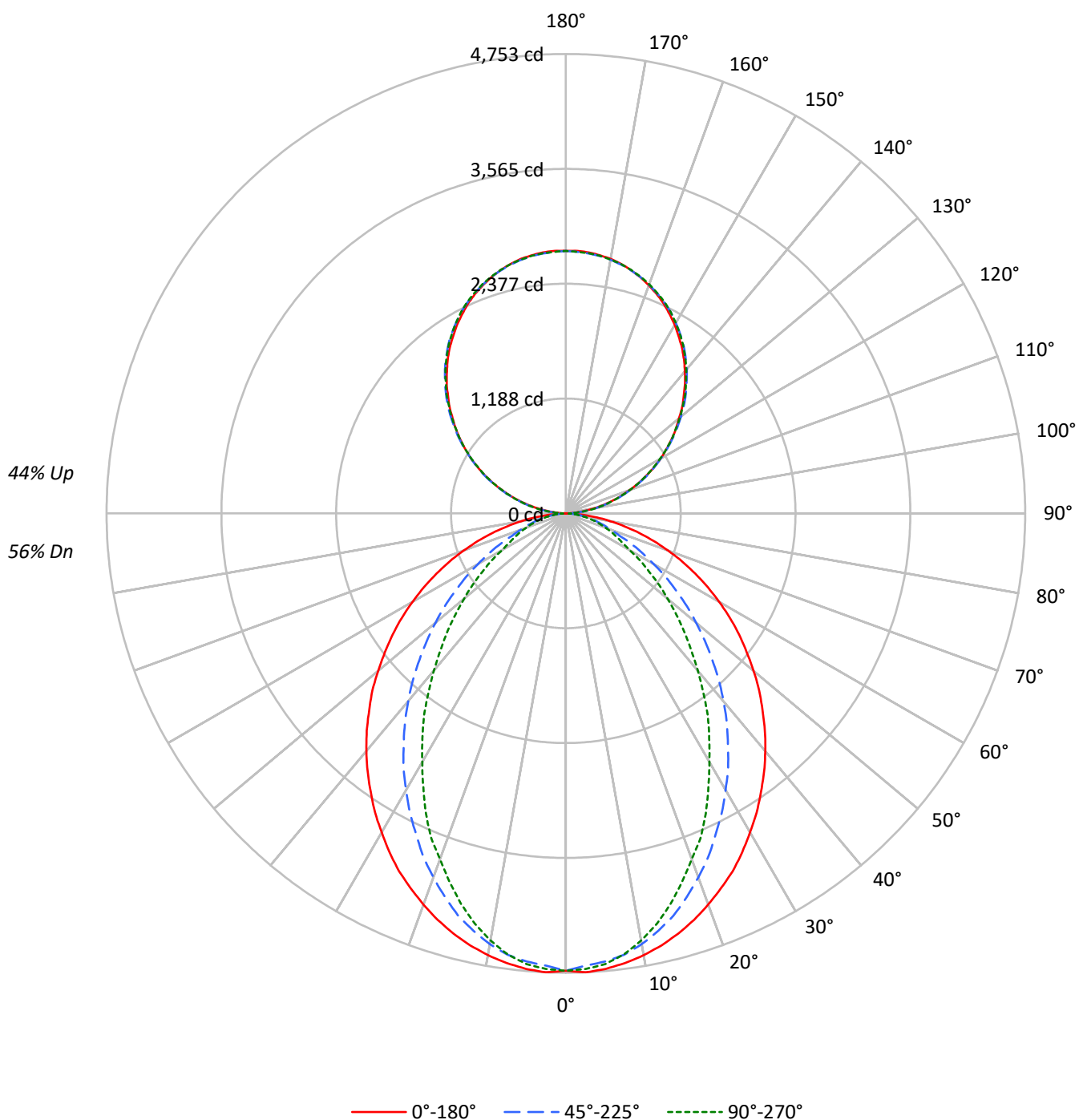
Lumens per Lamp: N/A
Luminaire Lumens: 17329.4 lumens
Efficiency: N/A
Efficacy: 89.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 192.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3454	3454	3454
5°	3459	3399	3421
10°	3425	3333	3311
15°	3378	3223	3139
20°	3316	3072	2928
25°	3252	2902	2725
30°	3166	2728	2467
35°	3082	2541	2240
40°	2996	2347	1979
45°	2897	2132	1743
50°	2794	1915	1513
55°	2687	1682	1291
60°	2563	1439	1064
65°	2420	1193	958
70°	2247	962	868
75°	2029	849	791
80°	1714	714	688
85°	1194	479	522

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2897 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.4	2.6
10°-20°	1217.3	7.0
20°-30°	1709.1	9.9
30°-40°	1863.0	10.8
40°-50°	1712.3	9.9
50°-60°	1344.7	7.8
60°-70°	875.3	5.1
70°-80°	450.6	2.6
80°-90°	122.7	0.7
90°-100°	168.0	1.0
100°-110°	533.9	3.1
110°-120°	913.7	5.3
120°-130°	1201.6	6.9
130°-140°	1348.7	7.8
140°-150°	1322.6	7.6
150°-160°	1109.5	6.4
160°-170°	735.8	4.2
170°-180°	257.2	1.5
0°-30°	3369.8	19.4
0°-40°	5232.8	30.2
0°-60°	8289.9	47.8
0°-90°	9738.5	56.2
90°-120°	1615.6	9.3
90°-150°	5488.5	31.7
90°-180°	7591.0	43.8
0°-180°	17329.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4732	4732	4732	4732	4732	
5°	4732	4710	4654	4693	4680	449
15°	4500	4453	4308	4226	4184	1268
25°	4085	3948	3665	3490	3425	1879
35°	3520	3301	2925	2655	2560	2203
45°	2878	2590	2141	1837	1734	2222
55°	2188	1854	1392	1135	1054	1955
65°	1477	1130	745	600	586	1465
75°	788	488	343	312	308	833
85°	184	94	81	81	81	211
90°	2	30	80	75	78	17
95°	120	142	146	146	142	133
105°	493	499	504	508	508	520
115°	917	930	926	924	917	907
125°	1334	1354	1348	1340	1338	1192
135°	1725	1750	1755	1753	1746	1333
145°	2094	2110	2124	2126	2117	1308
155°	2394	2401	2408	2420	2413	1102
165°	2605	2602	2602	2619	2607	735
175°	2710	2704	2699	2716	2702	258
180°	2716	2716	2716	2716	2716	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4731.5	4731.5	4731.5	4731.5	4731.5
2.5°	4752.8	4731.5	4684.2	4727.4	4718.7
5°	4731.5	4710.1	4654.2	4692.8	4680.1
7.5°	4692.8	4667.3	4607.4	4624.2	4602.9
10°	4641.5	4611.5	4526.1	4512.9	4487.5
12.5°	4577.4	4538.8	4422.9	4397.6	4350.3
15°	4500.2	4453.0	4307.6	4226.2	4183.6
17.5°	4410.2	4341.7	4161.7	4067.8	3999.2
20°	4307.6	4221.7	4007.8	3901.0	3806.5
22.5°	4196.3	4097.7	3849.2	3703.8	3639.8
25°	4085.0	3947.7	3665.2	3489.8	3425.3
27.5°	3952.3	3806.5	3493.9	3292.7	3194.1
30°	3811.0	3648.0	3305.4	3087.3	2971.5
32.5°	3673.9	3476.7	3126.0	2868.9	2761.6
35°	3519.9	3301.3	2924.7	2654.9	2560.3
37.5°	3369.9	3134.2	2736.2	2440.4	2333.7
40°	3211.4	2954.7	2539.1	2235.1	2123.8
42.5°	3048.7	2774.8	2342.4	2025.2	1918.5
45°	2877.5	2590.4	2141.1	1836.7	1734.0
47.5°	2714.8	2410.9	1948.4	1644.1	1550.1
50°	2535.0	2231.0	1759.9	1464.2	1374.7
52.5°	2359.1	2037.9	1580.0	1297.4	1216.2
55°	2187.9	1854.0	1391.5	1134.8	1053.5
57.5°	2012.5	1670.0	1224.7	984.9	916.3
60°	1832.6	1490.1	1048.9	830.9	762.3
62.5°	1657.3	1314.7	899.0	693.7	659.6
65°	1477.4	1130.3	745.1	599.7	586.5
67.5°	1306.1	959.0	599.7	526.5	513.8
70°	1126.2	792.3	496.6	453.8	436.6
72.5°	955.0	637.8	415.2	381.1	372.5
75°	787.7	487.9	342.6	312.5	308.4
77.5°	621.1	346.6	269.9	252.6	243.9
80°	466.6	248.5	205.3	188.5	188.5
82.5°	325.3	167.1	141.3	132.6	132.6
85°	184.0	94.1	81.3	81.3	81.3
87.5°	68.6	34.1	34.1	30.0	30.0
90°	2.5	29.5	80.2	75.3	77.8
92.5°	50.8	68.8	71.3	73.6	73.6
95°	119.5	142.4	146.5	146.5	142.4
97.5°	198.9	220.2	229.2	229.2	229.2
100°	290.6	309.5	316.0	316.0	313.6
102.5°	387.2	401.2	410.1	412.6	410.1
105°	492.8	499.3	504.3	508.4	508.4
107.5°	597.6	607.4	607.4	609.0	597.6
110°	699.1	712.3	712.3	712.3	705.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	808.8	822.7	820.2	813.8	808.8
115°	916.9	930.0	925.9	923.5	916.9
117.5°	1024.1	1042.1	1030.7	1024.1	1017.5
120°	1132.2	1150.1	1132.2	1132.2	1124.8
122.5°	1230.4	1253.4	1241.9	1235.3	1230.4
125°	1333.6	1354.0	1347.5	1340.1	1337.7
127.5°	1434.2	1459.6	1450.7	1440.8	1434.2
130°	1528.4	1557.9	1553.8	1548.8	1539.9
132.5°	1634.0	1656.9	1658.5	1647.1	1640.6
135°	1724.8	1750.2	1755.2	1752.7	1746.2
137.5°	1826.3	1846.8	1851.0	1849.3	1839.5
140°	1915.6	1936.0	1947.5	1947.5	1938.5
142.5°	2007.3	2027.7	2034.3	2036.8	2027.7
145°	2094.1	2110.4	2123.5	2126.0	2117.0
147.5°	2171.9	2192.3	2202.1	2206.2	2197.3
150°	2252.1	2266.0	2275.0	2282.3	2275.0
152.5°	2323.3	2337.2	2348.7	2357.7	2348.7
155°	2394.5	2401.0	2408.5	2419.9	2412.6
157.5°	2455.9	2460.8	2464.9	2481.3	2469.8
160°	2510.7	2515.7	2518.2	2532.0	2522.2
162.5°	2561.5	2561.5	2564.0	2579.5	2568.1
165°	2604.9	2602.4	2602.4	2618.8	2607.4
167.5°	2644.2	2636.9	2636.9	2653.2	2641.7
170°	2673.7	2667.1	2664.7	2681.0	2667.1
172.5°	2694.1	2687.6	2685.1	2701.5	2687.6
175°	2710.5	2703.9	2699.1	2715.5	2701.5
177.5°	2719.5	2713.0	2708.0	2722.0	2708.0
180°	2715.5	2715.5	2715.5	2715.5	2715.5

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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	12.02	12.90	12.93	13.83	15.01	7.98	8.87	8.89	9.79	10.97
	3H	13.70	14.49	14.63	15.43	16.63	9.18	9.97	10.10	10.90	12.11
	4H	14.32	15.06	15.25	16.00	17.22	9.63	10.38	10.57	11.31	12.53
	6H	14.74	15.43	15.69	16.37	17.60	9.96	10.64	10.90	11.59	12.82
	8H	14.87	15.53	15.83	16.49	17.71	10.05	10.70	11.00	11.66	12.89
	12H	14.94	15.56	15.90	16.51	17.77	10.09	10.71	11.05	11.67	12.92
4H	2H	12.04	12.79	12.99	13.73	14.94	8.59	9.33	9.53	10.27	11.49
	3H	13.88	14.50	14.83	15.47	16.70	9.94	10.56	10.90	11.53	12.76
	4H	14.58	15.14	15.54	16.11	17.36	10.49	11.06	11.46	12.02	13.28
	6H	15.10	15.58	16.07	16.57	17.83	10.92	11.40	11.89	12.39	13.65
	8H	15.28	15.73	16.25	16.71	17.98	11.05	11.50	12.02	12.48	13.75
	12H	15.38	15.78	16.37	16.78	18.06	11.12	11.52	12.11	12.52	13.80
8H	4H	14.55	15.00	15.53	15.98	17.25	10.78	11.23	11.76	12.21	13.48
	6H	15.12	15.50	16.12	16.52	17.78	11.30	11.68	12.30	12.70	13.97
	8H	15.34	15.67	16.35	16.68	17.97	11.49	11.82	12.50	12.83	14.12
	12H	15.48	15.77	16.49	16.78	18.11	11.62	11.91	12.63	12.91	14.24
12H	4H	14.50	14.91	15.50	15.91	17.18	10.79	11.20	11.78	12.19	13.47
	6H	15.10	15.43	16.11	16.44	17.72	11.35	11.68	12.36	12.69	13.98
	8H	15.32	15.61	16.33	16.62	17.95	11.57	11.86	12.58	12.86	14.19