

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: P919508

Luminaire Tested: DFN2DIP-PN3F0-090D090US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919508
REPORT IS A COMBINATION OF REPORTS P899607 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D090US935-FLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

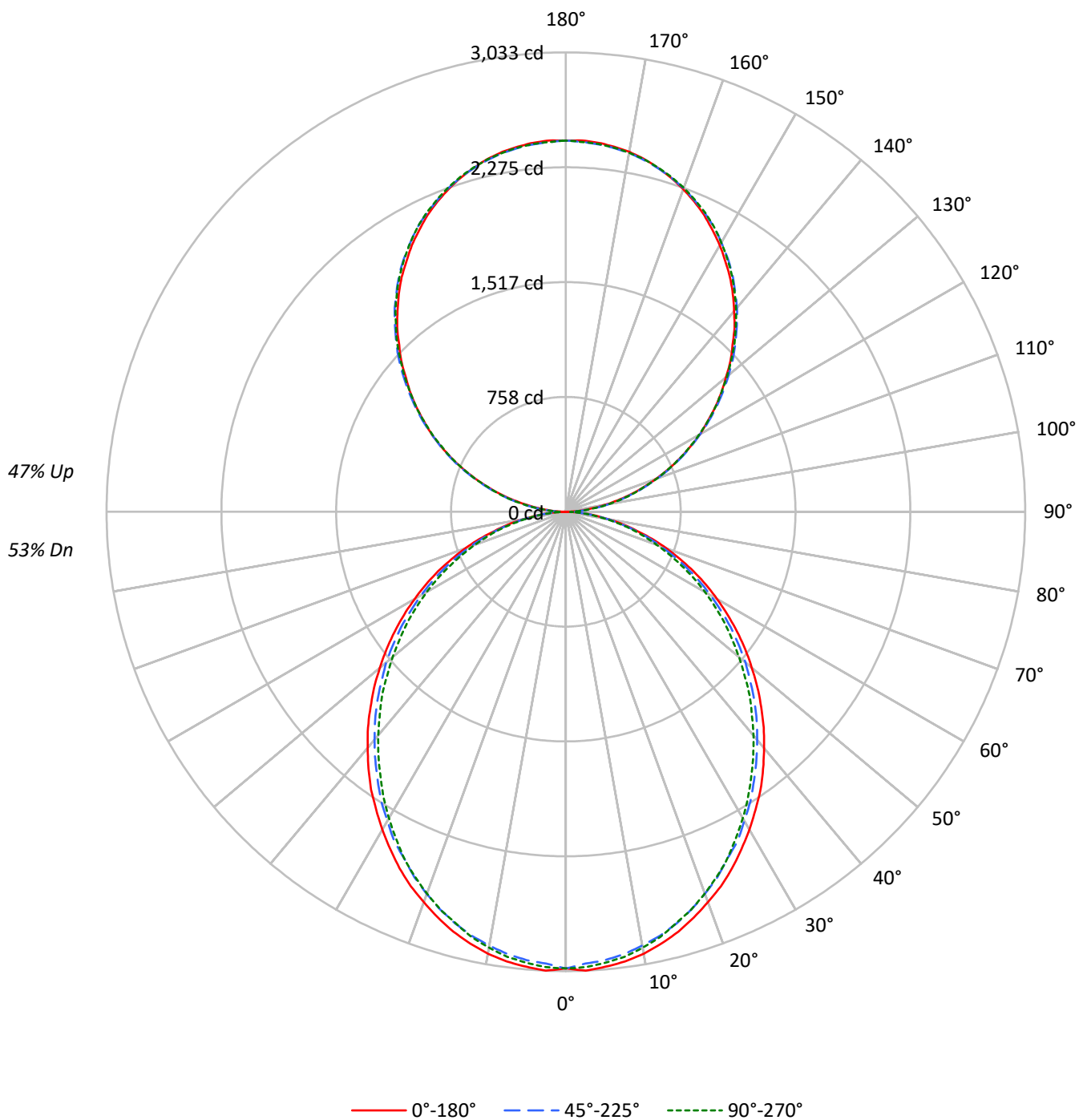
Lumens per Lamp: N/A
Luminaire Lumens: 14529.3 lumens
Efficiency: N/A
Efficacy: 88.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.2
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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85		71	71	71		59
1	98	94	90	87	91	87	84	81	74	72	70		63	61	59		52
2	90	82	76	71	83	76	71	66	65	61	58		55	52	50		46
3	82	72	65	59	75	67	61	55	58	53	49		49	45	42		41
4	75	64	56	50	69	60	52	47	51	46	41		43	39	36		36
5	69	57	49	43	63	53	46	40	46	40	36		39	35	31		33
6	63	51	43	37	58	48	40	35	41	36	31		35	31	27		30
7	59	46	38	33	54	43	36	31	37	32	28		32	28	24		27
8	54	42	34	29	50	39	32	27	34	29	24		29	25	22		25
9	51	38	31	26	47	36	29	24	31	26	22		27	23	19		23
10	47	35	28	23	44	33	26	22	29	23	20		25	21	18		21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3525	3525	3525
5°	3528	3473	3497
10°	3498	3424	3449
15°	3444	3365	3373
20°	3372	3284	3296
25°	3301	3188	3207
30°	3212	3098	3094
35°	3128	2993	2975
40°	3024	2887	2861
45°	2921	2780	2745
50°	2808	2667	2610
55°	2690	2537	2486
60°	2555	2384	2344
65°	2409	2224	2176
70°	2222	2029	1995
75°	1964	1796	1826
80°	1652	1497	1507
85°	1164	990	982

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2921 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	283.8	2.0
10°-20°	798.5	5.5
20°-30°	1173.4	8.1
30°-40°	1362.9	9.4
40°-50°	1361.2	9.4
50°-60°	1186.9	8.2
60°-70°	877.4	6.0
70°-80°	496.4	3.4
80°-90°	138.0	0.9
90°-100°	151.6	1.0
100°-110°	481.8	3.3
110°-120°	824.6	5.7
120°-130°	1084.4	7.5
130°-140°	1217.2	8.4
140°-150°	1193.6	8.2
150°-160°	1001.3	6.9
160°-170°	664.0	4.6
170°-180°	232.1	1.6
0°-30°	2255.7	15.5
0°-40°	3618.6	24.9
0°-60°	6166.7	42.4
0°-90°	7678.5	52.8
90°-120°	1458.0	10.0
90°-150°	4953.4	34.1
90°-180°	6851.0	47.2
0°-180°	14529.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3015	3015	3015	3015	3015	
5°	3015	3004	2972	2995	2989	286
15°	2870	2853	2815	2827	2812	808
25°	2598	2575	2526	2531	2526	1195
35°	2241	2212	2166	2148	2134	1400
45°	1824	1804	1760	1728	1716	1408
55°	1380	1363	1328	1293	1279	1234
65°	931	913	884	858	844	920
75°	487	481	467	449	455	520
85°	119	116	113	104	102	132
90°	2	27	72	68	70	14
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3015.1	3015.1	3015.1	3015.1	3015.1
2.5°	3032.7	3018.2	2986.3	3015.1	3009.6
5°	3015.1	3003.8	2971.8	2994.9	2989.3
7.5°	2994.9	2977.7	2945.6	2969.1	2963.2
10°	2963.2	2942.9	2908.1	2931.2	2922.6
12.5°	2919.5	2902.3	2867.6	2881.9	2876.2
15°	2870.3	2853.1	2815.2	2826.9	2812.4
17.5°	2809.3	2792.1	2754.3	2768.8	2754.3
20°	2742.6	2725.4	2684.8	2693.4	2682.0
22.5°	2676.2	2650.1	2612.2	2612.2	2606.3
25°	2597.7	2574.6	2525.5	2531.0	2525.5
27.5°	2510.7	2490.4	2452.9	2444.3	2429.8
30°	2424.0	2400.5	2357.2	2348.5	2336.9
32.5°	2331.1	2313.8	2267.4	2249.9	2238.2
35°	2241.3	2212.3	2165.8	2148.4	2133.9
37.5°	2139.8	2113.6	2067.1	2046.9	2032.4
40°	2035.4	2012.1	1965.6	1939.7	1928.1
42.5°	1933.9	1910.6	1864.4	1835.2	1818.0
45°	1823.8	1803.5	1759.8	1728.1	1716.5
47.5°	1716.5	1696.2	1649.7	1617.7	1600.5
50°	1603.3	1588.8	1548.2	1507.6	1493.1
52.5°	1493.1	1472.8	1435.3	1403.3	1383.0
55°	1380.3	1362.7	1327.9	1293.2	1278.8
57.5°	1267.0	1252.6	1214.8	1180.0	1168.3
60°	1153.8	1142.5	1101.8	1069.9	1061.3
62.5°	1043.7	1023.4	994.5	965.6	953.9
65°	930.8	913.3	884.3	858.2	843.8
67.5°	814.8	800.1	774.2	754.0	742.3
70°	707.5	695.8	669.7	649.4	638.0
72.5°	597.4	585.7	571.2	551.0	542.3
75°	487.0	481.4	466.7	449.4	455.3
77.5°	388.5	376.9	371.0	362.4	353.8
80°	290.1	287.0	281.1	272.5	266.7
82.5°	197.2	197.2	194.4	182.7	182.7
85°	118.7	116.0	113.2	104.3	101.5
87.5°	52.3	46.4	40.6	32.0	28.9
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7

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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	11.87	12.76	12.80	13.71	14.94	11.43	12.32	12.36	13.27	14.50
	3H	13.52	14.32	14.47	15.28	16.53	13.04	13.84	13.99	14.80	16.05
	4H	14.11	14.86	15.07	15.83	17.09	13.62	14.38	14.58	15.34	16.60
	6H	14.51	15.20	15.48	16.17	17.44	14.02	14.71	14.99	15.68	16.95
	8H	14.61	15.27	15.59	16.26	17.53	14.12	14.78	15.09	15.77	17.04
	12H	14.66	15.29	15.64	16.27	17.56	14.16	14.79	15.14	15.77	17.07
4H	2H	12.33	13.08	13.29	14.05	15.31	11.98	12.73	12.94	13.70	14.96
	3H	14.19	14.82	15.16	15.81	17.09	13.79	14.42	14.76	15.41	16.69
	4H	14.90	15.48	15.88	16.46	17.76	14.48	15.06	15.47	16.05	17.35
	6H	15.41	15.91	16.41	16.92	18.22	14.99	15.48	15.98	16.49	17.79
	8H	15.56	16.02	16.56	17.03	18.34	15.13	15.60	16.13	16.60	17.91
	12H	15.63	16.05	16.65	17.07	18.39	15.19	15.61	16.21	16.63	17.95
8H	4H	15.10	15.56	16.09	16.56	17.87	14.73	15.19	15.72	16.19	17.50
	6H	15.72	16.10	16.74	17.15	18.46	15.35	15.73	16.37	16.77	18.08
	8H	15.94	16.27	16.97	17.31	18.64	15.55	15.89	16.58	16.92	18.25
	12H	16.07	16.36	17.10	17.39	18.76	15.67	15.96	16.70	16.99	18.36
12H	4H	15.08	15.50	16.10	16.52	17.84	14.72	15.14	15.73	16.16	17.48
	6H	15.75	16.09	16.78	17.12	18.45	15.38	15.72	16.41	16.75	18.08
	8H	15.99	16.28	17.02	17.31	18.68	15.62	15.91	16.65	16.94	18.31