

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: P920177

Luminaire Tested: DFN2DIP-SQ3F0-090D080US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920177
REPORT IS A COMBINATION OF REPORTS P901463 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D080US935-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

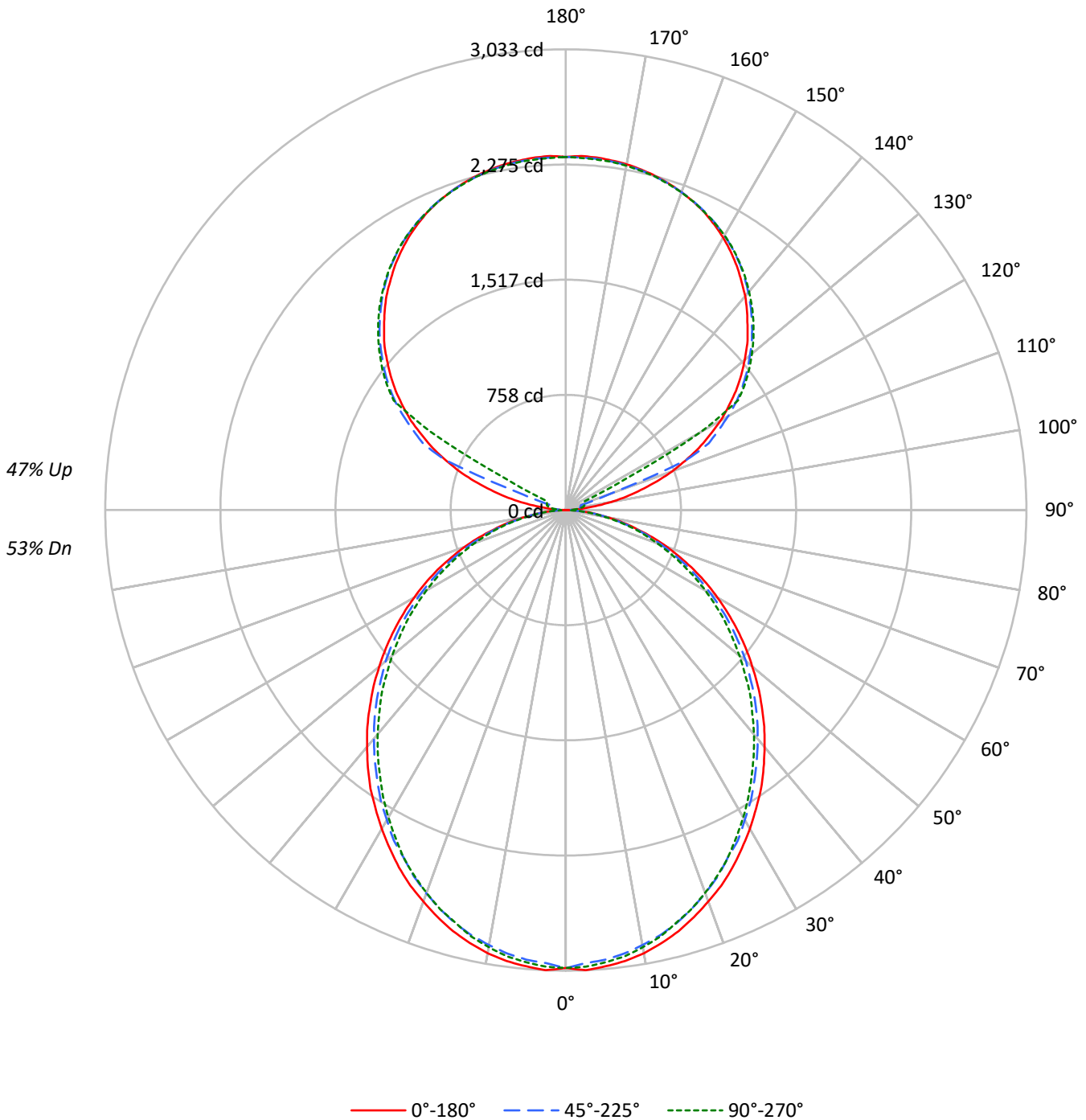
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14490.6 lumens
Efficiency: N/A
Efficacy: 97.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 148.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	59	59	59	53
1	98	94	90	87	91	87	84	81	75	72	70	63	61	59	52	51	50	52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	41	38	36	32
4	75	64	56	50	69	60	53	47	51	46	41	43	39	36	36	33	31	36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	23	20	17	15
10	47	35	28	23	44	33	26	22	29	24	20	25	21	18	21	18	15	21	18	15	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3455	3455	3455
5°	3458	3404	3428
10°	3428	3356	3381
15°	3375	3299	3307
20°	3305	3220	3232
25°	3235	3126	3145
30°	3148	3038	3035
35°	3065	2935	2918
40°	2963	2830	2807
45°	2862	2726	2694
50°	2751	2616	2562
55°	2635	2489	2441
60°	2503	2338	2302
65°	2359	2182	2138
70°	2175	1991	1962
75°	1922	1763	1797
80°	1615	1470	1485
85°	1137	974	972

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2862 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	6.1
70°-80°	496.4	3.4
80°-90°	135.1	0.9
90°-100°	76.7	0.5
100°-110°	285.7	2.0
110°-120°	757.9	5.2
120°-130°	1256.9	8.7
130°-140°	1335.2	9.2
140°-150°	1240.9	8.6
150°-160°	997.6	6.9
160°-170°	642.8	4.4
170°-180°	221.3	1.5
0°-30°	2255.7	15.6
0°-40°	3618.6	25.0
0°-60°	6166.7	42.6
0°-90°	7675.6	53.0
90°-120°	1120.2	7.7
90°-150°	4953.3	34.2
90°-180°	6815.0	47.0
0°-180°	14490.6	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	20	34	42	45	13
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2161	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	



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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°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.3	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.1
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.6	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.4	2146.5	2166.6	2176.6	2163.3
157.5°	2196.7	2183.4	2198.6	2210.4	2196.7
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6



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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	11.82	12.70	12.75	13.65	14.88	11.37	12.26	12.30	13.21	14.44
	3H	13.47	14.27	14.42	15.23	16.48	12.98	13.78	13.93	14.74	15.99
	4H	14.06	14.81	15.02	15.78	17.04	13.57	14.32	14.52	15.28	16.54
	6H	14.46	15.15	15.43	16.12	17.39	13.96	14.65	14.93	15.62	16.89
	8H	14.56	15.22	15.54	16.21	17.48	14.06	14.72	15.03	15.71	16.98
	12H	14.61	15.24	15.59	16.22	17.51	14.10	14.73	15.08	15.71	17.00
4H	2H	12.28	13.03	13.24	13.99	15.25	11.92	12.68	12.88	13.64	14.90
	3H	14.14	14.77	15.11	15.76	17.04	13.73	14.36	14.70	15.35	16.63
	4H	14.85	15.43	15.83	16.41	17.71	14.43	15.00	15.41	15.99	17.29
	6H	15.36	15.86	16.36	16.87	18.17	14.93	15.43	15.92	16.44	17.73
	8H	15.51	15.97	16.51	16.98	18.29	15.07	15.54	16.07	16.54	17.85
	12H	15.58	16.00	16.60	17.02	18.34	15.13	15.55	16.15	16.57	17.89
8H	4H	15.05	15.51	16.04	16.51	17.82	14.67	15.13	15.66	16.13	17.45
	6H	15.67	16.06	16.69	17.10	18.41	15.29	15.67	16.31	16.72	18.02
	8H	15.89	16.23	16.92	17.26	18.59	15.50	15.83	16.53	16.87	18.19
	12H	16.02	16.32	17.05	17.34	18.71	15.61	15.91	16.64	16.93	18.30
12H	4H	15.03	15.45	16.05	16.47	17.79	14.66	15.08	15.68	16.10	17.42
	6H	15.70	16.04	16.73	17.07	18.40	15.33	15.67	16.36	16.70	18.03
	8H	15.94	16.24	16.97	17.26	18.63	15.56	15.86	16.59	16.88	18.25