

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: P920188

Luminaire Tested: DFN2DIP-SQ3F0-090D110US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920188
REPORT IS A COMBINATION OF REPORTS P899997 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D110US935-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

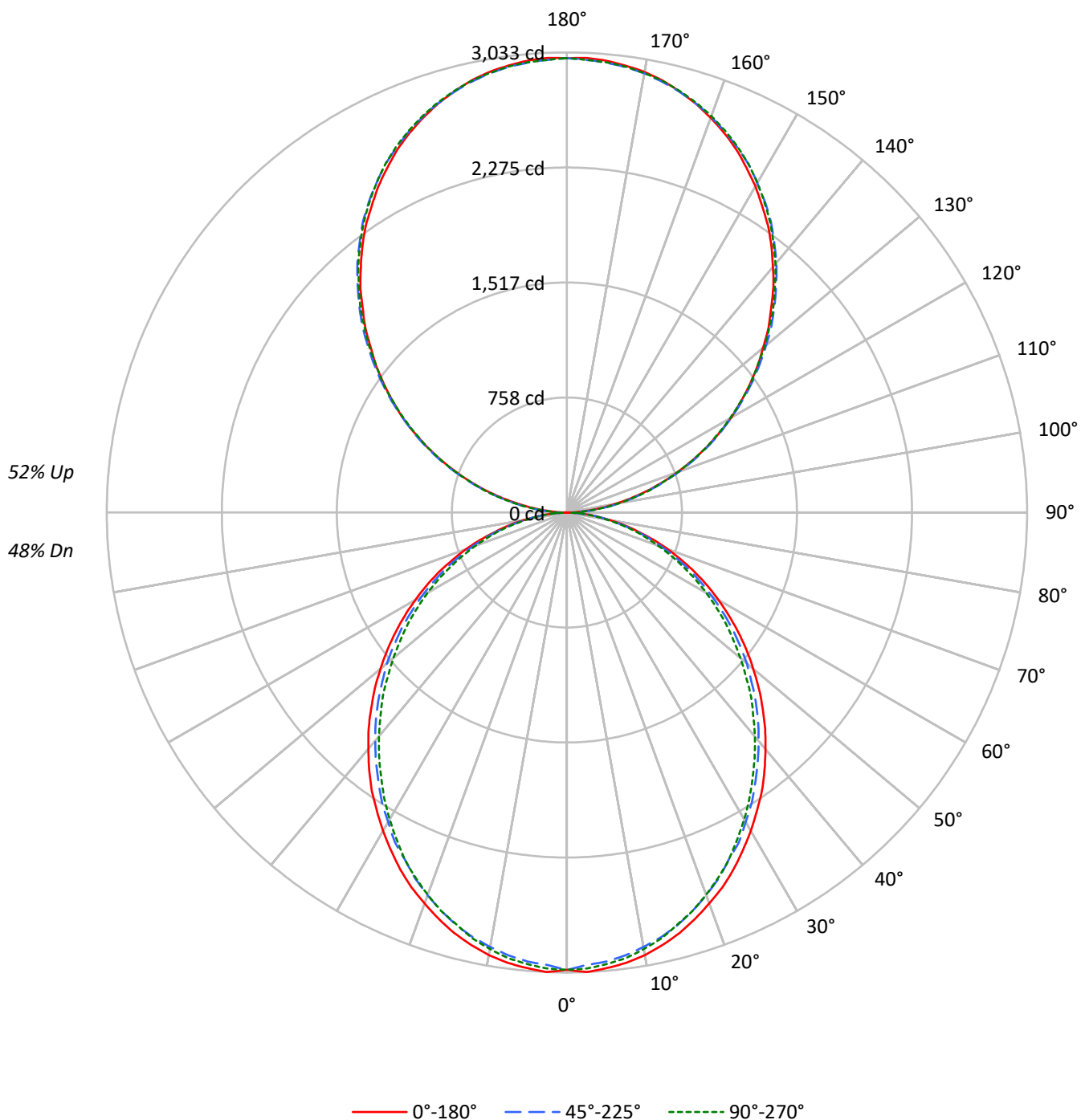
Lumens per Lamp: N/A
Luminaire Lumens: 16053.3 lumens
Efficiency: N/A
Efficacy: 92.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 173.7
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

TEST NUMBER: P920188

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US935-FLLFLL

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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	31	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	26	30	26	23	25	22	19
8	54	41	34	28	49	38	32	27	33	27	24	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	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: 90°

Vertical Angle: 90°

Luminance: 3013 cd/sqm

TEST NUMBER: P920188

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US935-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	283.8	1.8
10°-20°	798.5	5.0
20°-30°	1173.4	7.3
30°-40°	1362.9	8.5
40°-50°	1361.2	8.5
50°-60°	1186.9	7.4
60°-70°	877.4	5.5
70°-80°	496.4	3.1
80°-90°	139.5	0.9
90°-100°	185.3	1.2
100°-110°	588.9	3.7
110°-120°	1007.8	6.3
120°-130°	1325.4	8.3
130°-140°	1487.7	9.3
140°-150°	1458.9	9.1
150°-160°	1223.8	7.6
160°-170°	811.6	5.1
170°-180°	283.7	1.8
0°-30°	2255.7	14.1
0°-40°	3618.6	22.5
0°-60°	6166.7	38.4
0°-90°	7680.0	47.8
90°-120°	1782.1	11.1
90°-150°	6054.2	37.7
90°-180°	8373.0	52.2
0°-180°	16053.3	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°	3	32	88	83	86	16
95°	132	157	162	162	157	147
105°	544	551	556	561	561	574
115°	1011	1026	1021	1019	1011	1000
125°	1471	1494	1486	1478	1476	1315
135°	1903	1931	1936	1933	1926	1471
145°	2310	2328	2342	2345	2335	1443
155°	2641	2648	2657	2669	2661	1216
165°	2873	2871	2871	2889	2876	811
175°	2990	2983	2977	2995	2980	284
180°	2995	2995	2995	2995	2995	

TEST NUMBER: P920188

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US935-FLLFLL

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°	2.7	32.5	88.5	83.1	85.8
92.5°	56.0	75.9	78.5	81.3	81.3
95°	131.8	157.1	161.6	161.6	157.1
97.5°	219.5	242.9	252.9	252.9	252.9
100°	320.5	341.3	348.5	348.5	345.9
102.5°	427.1	442.5	452.5	455.1	452.5
105°	543.6	550.9	556.3	560.8	560.8
107.5°	659.2	670.0	670.0	671.8	659.2
110°	771.2	785.7	785.7	785.7	778.4

TEST NUMBER: P920188

CATALOG NUMBER: DFN2DIP-SQ3F0-090D110US935-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	892.2	907.5	904.8	897.6	892.2
115°	1011.4	1025.8	1021.3	1018.6	1011.4
117.5°	1129.7	1149.5	1136.9	1129.7	1122.5
120°	1248.9	1268.8	1248.9	1248.9	1240.8
122.5°	1357.3	1382.5	1369.8	1362.6	1357.3
125°	1471.0	1493.6	1486.3	1478.2	1475.5
127.5°	1582.1	1610.1	1600.2	1589.3	1582.1
130°	1685.9	1718.5	1713.9	1708.5	1698.6
132.5°	1802.4	1827.7	1829.5	1816.9	1809.6
135°	1902.6	1930.6	1936.0	1933.4	1926.1
137.5°	2014.6	2037.2	2041.7	2039.9	2029.1
140°	2113.1	2135.6	2148.3	2148.3	2138.4
142.5°	2214.2	2236.8	2244.0	2246.7	2236.8
145°	2309.9	2328.0	2342.4	2345.1	2335.2
147.5°	2395.7	2418.3	2429.1	2433.6	2423.7
150°	2484.2	2499.6	2509.5	2517.6	2509.5
152.5°	2562.8	2578.1	2590.7	2600.7	2590.7
155°	2641.4	2648.5	2656.7	2669.4	2661.2
157.5°	2709.0	2714.5	2718.9	2737.0	2724.4
160°	2769.6	2775.0	2777.7	2793.1	2782.2
162.5°	2825.5	2825.5	2828.3	2845.4	2832.8
165°	2873.4	2870.7	2870.7	2888.7	2876.1
167.5°	2916.7	2908.6	2908.6	2926.7	2914.0
170°	2949.3	2942.0	2939.4	2957.4	2942.0
172.5°	2971.8	2964.6	2961.9	2980.0	2964.6
175°	2989.9	2982.7	2977.2	2995.3	2980.0
177.5°	2999.8	2992.6	2987.1	3002.6	2987.1
180°	2995.3	2995.3	2995.3	2995.3	2995.3

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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	11.34	12.18	12.32	13.17	14.47	10.90	11.74	11.87	12.73	14.03
	3H	12.99	13.75	13.98	14.75	16.07	12.50	13.26	13.49	14.26	15.58
	4H	13.58	14.29	14.58	15.30	16.63	13.08	13.80	14.08	14.80	16.13
	6H	13.97	14.63	14.98	15.64	16.98	13.47	14.13	14.48	15.14	16.48
	8H	14.08	14.70	15.09	15.73	17.07	13.57	14.20	14.59	15.23	16.57
	12H	14.12	14.72	15.14	15.74	17.10	13.61	14.21	14.63	15.23	16.59
4H	2H	11.80	12.51	12.80	13.51	14.84	11.44	12.16	12.45	13.16	14.49
	3H	13.65	14.25	14.67	15.28	16.63	13.25	13.84	14.26	14.87	16.22
	4H	14.36	14.91	15.39	15.93	17.30	13.94	14.49	14.96	15.51	16.88
	6H	14.87	15.34	15.91	16.39	17.75	14.44	14.91	15.47	15.96	17.32
	8H	15.02	15.46	16.05	16.50	17.88	14.58	15.02	15.62	16.06	17.44
	12H	15.09	15.49	16.14	16.54	17.93	14.64	15.04	15.69	16.09	17.48
8H	4H	14.55	14.99	15.59	16.03	17.41	14.18	14.62	15.21	15.66	17.04
	6H	15.18	15.54	16.24	16.62	18.00	14.79	15.16	15.85	16.24	17.62
	8H	15.40	15.72	16.46	16.78	18.18	15.00	15.32	16.07	16.39	17.78
	12H	15.52	15.80	16.59	16.87	18.30	15.11	15.39	16.18	16.45	17.89
12H	4H	14.54	14.94	15.59	15.99	17.37	14.17	14.57	15.22	15.62	17.01
	6H	15.21	15.53	16.27	16.59	17.99	14.83	15.15	15.90	16.22	17.62
	8H	15.44	15.73	16.51	16.79	18.22	15.06	15.34	16.13	16.40	17.84