

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: P917432

Luminaire Tested: DFN2DIP-SQ3F0-090D040US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P917432  
REPORT IS A COMBINATION OF REPORTS P899871 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-090D040US930-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

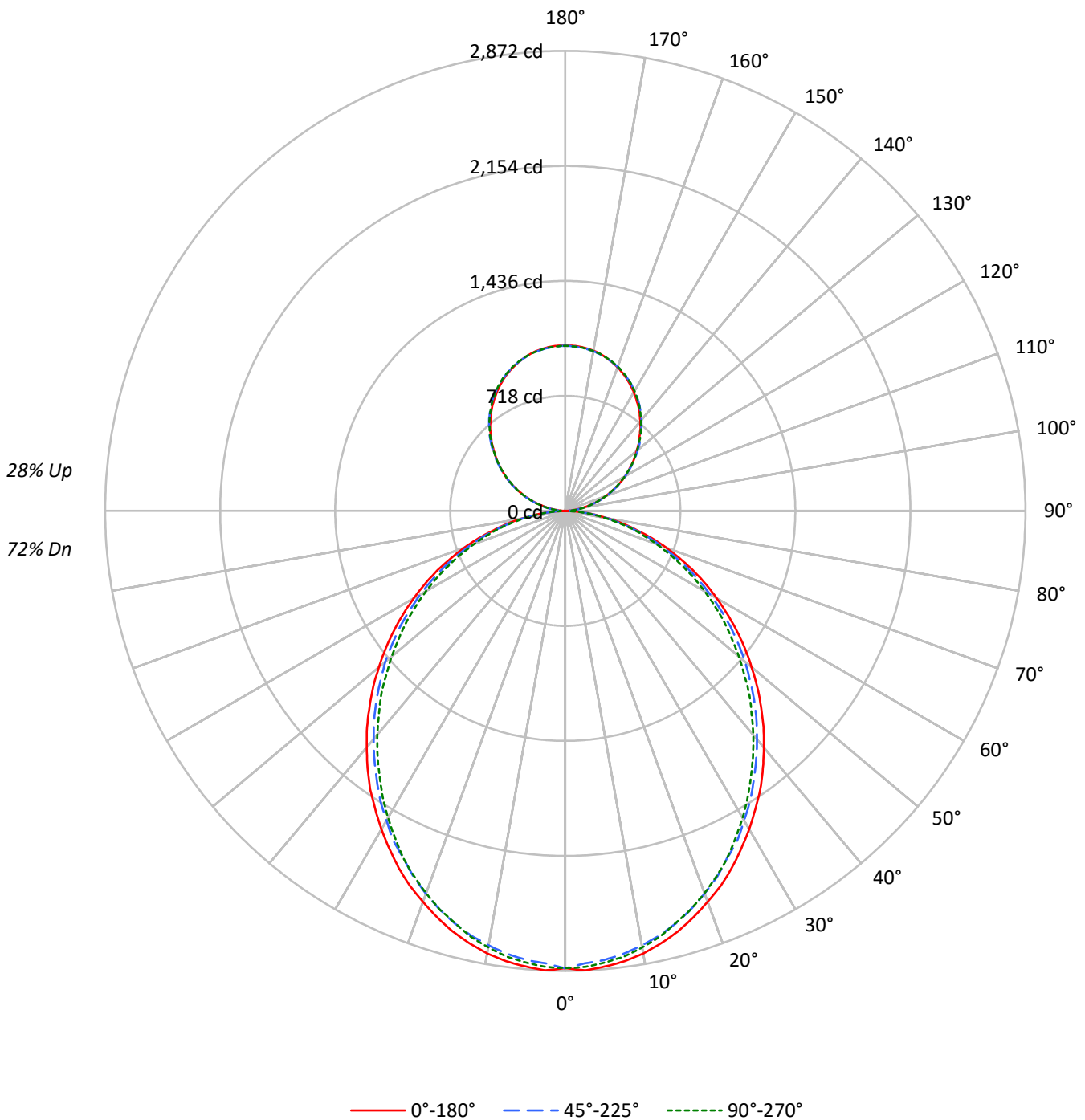
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10150.5 lumens  
Efficiency: N/A  
Efficacy: 85.9 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: Semi-Direct

Input Watts (W): 118.1  
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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	76	76	76	76	76	76	72
1	103	98	94	91	97	93	90	86	84	81	79	75	73	71	67	66	64	64	64	64	60
2	93	86	79	74	88	81	76	71	73	69	65	66	63	59	59	56	54	54	54	54	51
3	85	75	68	62	81	72	65	59	65	59	55	58	54	50	52	49	46	46	46	46	43
4	78	67	59	52	74	64	56	51	58	52	47	52	47	43	47	43	40	40	40	40	37
5	72	60	51	45	68	57	49	44	52	45	41	47	42	38	42	38	35	35	35	35	32
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	31	31	31	31	28
7	61	49	40	35	58	47	39	34	42	36	31	39	33	29	35	31	27	27	27	27	25
8	57	44	36	31	54	42	35	30	39	33	28	35	30	26	32	28	24	24	24	24	22
9	53	41	33	28	50	39	32	27	36	30	25	33	27	24	30	25	22	22	22	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20	20	20	20	18

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

	0°	45°	90°
0°	3271	3271	3271
5°	3275	3224	3246
10°	3246	3178	3201
15°	3196	3124	3132
20°	3130	3049	3060
25°	3063	2960	2978
30°	2981	2876	2874
35°	2902	2779	2763
40°	2806	2680	2658
45°	2710	2581	2551
50°	2605	2477	2426
55°	2495	2357	2311
60°	2370	2214	2180
65°	2233	2066	2025
70°	2060	1885	1857
75°	1820	1669	1701
80°	1530	1392	1407
85°	1076	923	920

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2710 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	268.7	2.6
10°-20°	756.1	7.4
20°-30°	1111.2	10.9
30°-40°	1290.5	12.7
40°-50°	1288.9	12.7
50°-60°	1123.9	11.1
60°-70°	830.8	8.2
70°-80°	470.1	4.6
80°-90°	127.0	1.3
90°-100°	63.8	0.6
100°-110°	202.8	2.0
110°-120°	347.0	3.4
120°-130°	456.4	4.5
130°-140°	512.3	5.0
140°-150°	502.4	4.9
150°-160°	421.4	4.2
160°-170°	279.5	2.8
170°-180°	97.7	1.0
0°-30°	2136.0	21.0
0°-40°	3426.5	33.8
0°-60°	5839.4	57.5
0°-90°	7267.3	71.6
90°-120°	613.6	6.0
90°-150°	2084.7	20.5
90°-180°	2883.0	28.4
0°-180°	10150.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	1	11	30	29	30	10
95°	45	54	56	56	54	51
105°	187	190	192	193	193	198
115°	348	353	352	351	348	344
125°	506	514	512	509	508	453
135°	655	665	667	666	663	506
145°	795	802	807	808	804	497
155°	910	912	915	919	916	419
165°	989	988	988	995	990	279
175°	1030	1027	1025	1031	1026	98
180°	1031	1031	1031	1031	1031	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	0.9	11.2	30.5	28.6	29.5
92.5°	19.2	26.1	27.1	28.0	28.0
95°	45.4	54.1	55.7	55.7	54.1
97.5°	75.6	83.6	87.1	87.1	87.1
100°	110.4	117.6	120.0	120.0	119.1
102.5°	147.1	152.4	155.8	156.7	155.8
105°	187.2	189.6	191.5	193.1	193.1
107.5°	227.0	230.7	230.7	231.3	227.0
110°	265.5	270.5	270.5	270.5	268.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	307.2	312.5	311.5	309.1	307.2
115°	348.2	353.3	351.6	350.7	348.2
117.5°	389.0	395.8	391.5	389.0	386.5
120°	430.1	436.8	430.1	430.1	427.2
122.5°	467.3	476.1	471.7	469.2	467.3
125°	506.5	514.3	511.8	509.0	508.1
127.5°	544.8	554.4	551.0	547.2	544.8
130°	580.5	591.7	590.2	588.3	584.9
132.5°	620.6	629.3	630.0	625.6	623.1
135°	655.2	664.8	666.7	665.7	663.2
137.5°	693.7	701.5	703.0	702.4	698.7
140°	727.6	735.4	739.7	739.7	736.3
142.5°	762.5	770.2	772.7	773.6	770.2
145°	795.4	801.6	806.6	807.6	804.1
147.5°	824.9	832.7	836.4	838.0	834.5
150°	855.4	860.7	864.1	866.9	864.1
152.5°	882.5	887.7	892.1	895.5	892.1
155°	909.5	912.0	914.8	919.2	916.3
157.5°	932.9	934.7	936.2	942.5	938.1
160°	953.7	955.5	956.4	961.7	958.0
162.5°	972.9	972.9	973.9	979.7	975.4
165°	989.4	988.5	988.5	994.7	990.3
167.5°	1004.4	1001.5	1001.5	1007.8	1003.4
170°	1015.5	1013.0	1012.1	1018.3	1013.0
172.5°	1023.3	1020.8	1019.9	1026.1	1020.8
175°	1029.6	1027.0	1025.2	1031.4	1026.1
177.5°	1033.0	1030.5	1028.6	1033.9	1028.6
180°	1031.4	1031.4	1031.4	1031.4	1031.4



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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	13.15	14.24	13.89	15.01	15.94	12.70	13.80	13.45	14.57	15.49
	3H	14.82	15.80	15.58	16.58	17.54	14.33	15.31	15.09	16.09	17.05
	4H	15.41	16.34	16.19	17.13	18.10	14.92	15.85	15.70	16.64	17.60
	6H	15.82	16.68	16.61	17.48	18.46	15.32	16.18	16.11	16.98	17.96
	8H	15.93	16.75	16.73	17.56	18.55	15.43	16.25	16.23	17.06	18.05
	12H	15.99	16.77	16.79	17.57	18.58	15.48	16.26	16.28	17.07	18.08
4H	2H	13.63	14.56	14.41	15.35	16.32	13.28	14.21	14.06	14.99	15.96
	3H	15.51	16.29	16.31	17.11	18.09	15.10	15.88	15.90	16.70	17.69
	4H	16.23	16.94	17.04	17.76	18.77	15.81	16.51	16.62	17.34	18.35
	6H	16.76	17.37	17.58	18.21	19.23	16.32	16.94	17.15	17.78	18.80
	8H	16.91	17.48	17.74	18.32	19.35	16.47	17.04	17.30	17.88	18.92
	12H	16.99	17.51	17.84	18.37	19.40	16.54	17.06	17.39	17.92	18.96
8H	4H	16.44	17.01	17.27	17.86	18.89	16.07	16.64	16.90	17.48	18.51
	6H	17.08	17.55	17.94	18.43	19.47	16.69	17.17	17.55	18.05	19.08
	8H	17.30	17.72	18.17	18.60	19.65	16.90	17.33	17.77	18.20	19.25
	12H	17.44	17.81	18.31	18.68	19.78	17.03	17.40	17.90	18.27	19.37
12H	4H	16.44	16.95	17.29	17.82	18.85	16.07	16.59	16.92	17.45	18.48
	6H	17.11	17.53	17.98	18.41	19.46	16.74	17.16	17.60	18.04	19.08
	8H	17.36	17.73	18.23	18.60	19.70	16.98	17.35	17.85	18.22	19.32