

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: P920498

Luminaire Tested: DFN2DIP-SQ4F0-110D090US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920498
REPORT IS A COMBINATION OF REPORTS P900124 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D090US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

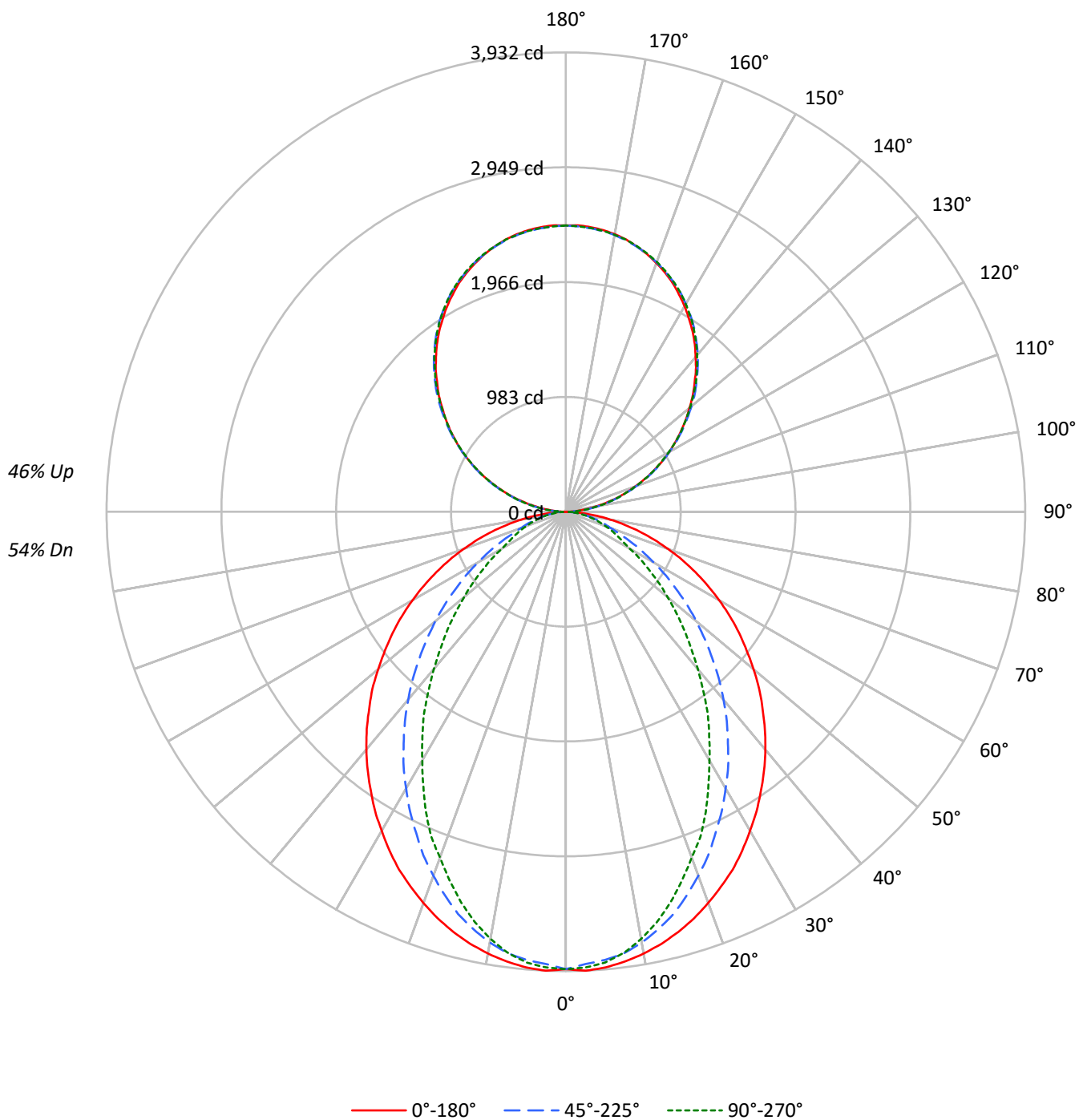
Lumens per Lamp: N/A
Luminaire Lumens: 14908.1 lumens
Efficiency: N/A
Efficacy: 86.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 171.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60
1	99	95	91	88	92	88	85	82	76	73	71	64	63	61	54	53	52
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	60	55	51	51	47	45	43	40	38
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	38	43	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	23
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2747	2747	2747
5°	2751	2704	2721
10°	2724	2651	2633
15°	2686	2564	2497
20°	2637	2444	2330
25°	2586	2309	2168
30°	2517	2170	1963
35°	2451	2022	1783
40°	2383	1868	1576
45°	2304	1696	1388
50°	2222	1524	1205
55°	2136	1339	1029
60°	2038	1146	848
65°	1924	950	764
70°	1786	767	692
75°	1613	677	632
80°	1362	570	551
85°	949	383	419

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2304 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.5
10°-20°	1007.1	6.8
20°-30°	1413.9	9.5
30°-40°	1541.3	10.3
40°-50°	1416.6	9.5
50°-60°	1112.5	7.5
60°-70°	724.2	4.9
70°-80°	372.8	2.5
80°-90°	102.1	0.7
90°-100°	151.6	1.0
100°-110°	481.8	3.2
110°-120°	824.6	5.5
120°-130°	1084.4	7.3
130°-140°	1217.2	8.2
140°-150°	1193.6	8.0
150°-160°	1001.3	6.7
160°-170°	664.0	4.5
170°-180°	232.1	1.6
0°-30°	2787.9	18.7
0°-40°	4329.1	29.0
0°-60°	6858.3	46.0
0°-90°	8057.3	54.0
90°-120°	1458.0	9.8
90°-150°	4953.4	33.2
90°-180°	6851.0	46.0
0°-180°	14908.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	2	27	72	68	70	15
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°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.5	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.0	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.0	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.2	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.6	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.8	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.8	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
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	11.04	11.90	11.97	12.84	14.06	7.00	7.86	7.93	8.81	10.02
	3H	12.72	13.50	13.66	14.45	15.69	8.19	8.96	9.13	9.92	11.15
	4H	13.34	14.07	14.29	15.02	16.27	8.64	9.37	9.60	10.33	11.58
	6H	13.76	14.44	14.73	15.40	16.66	8.97	9.64	9.93	10.60	11.86
	8H	13.89	14.53	14.87	15.51	16.77	9.06	9.70	10.03	10.68	11.93
	12H	13.96	14.57	14.94	15.54	16.82	9.10	9.71	10.08	10.68	11.97
4H	2H	11.06	11.79	12.02	12.75	14.00	7.60	8.33	8.56	9.29	10.54
	3H	12.90	13.51	13.87	14.49	15.75	8.96	9.56	9.93	10.55	11.81
	4H	13.60	14.15	14.57	15.13	16.41	9.51	10.06	10.48	11.04	12.33
	6H	14.12	14.59	15.11	15.60	16.88	9.93	10.40	10.92	11.41	12.69
	8H	14.30	14.74	15.29	15.74	17.03	10.06	10.50	11.05	11.50	12.80
	12H	14.39	14.79	15.40	15.81	17.11	10.13	10.53	11.14	11.54	12.84
8H	4H	13.57	14.01	14.56	15.01	16.31	9.79	10.24	10.78	11.23	12.53
	6H	14.14	14.50	15.15	15.54	16.84	10.31	10.68	11.33	11.72	13.01
	8H	14.36	14.68	15.38	15.71	17.02	10.50	10.83	11.53	11.85	13.17
	12H	14.50	14.79	15.53	15.80	17.17	10.63	10.91	11.65	11.93	13.29
12H	4H	13.52	13.92	14.53	14.93	16.24	9.80	10.20	10.81	11.21	12.52
	6H	14.11	14.44	15.14	15.46	16.78	10.36	10.69	11.39	11.71	13.03
	8H	14.34	14.62	15.37	15.64	17.00	10.58	10.86	11.60	11.88	13.24

END OF REPORT