

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: P923238

Luminaire Tested: DFN2DIP-SQ4F0-110D120US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923238
REPORT IS A COMBINATION OF REPORTS P900178 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D120US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

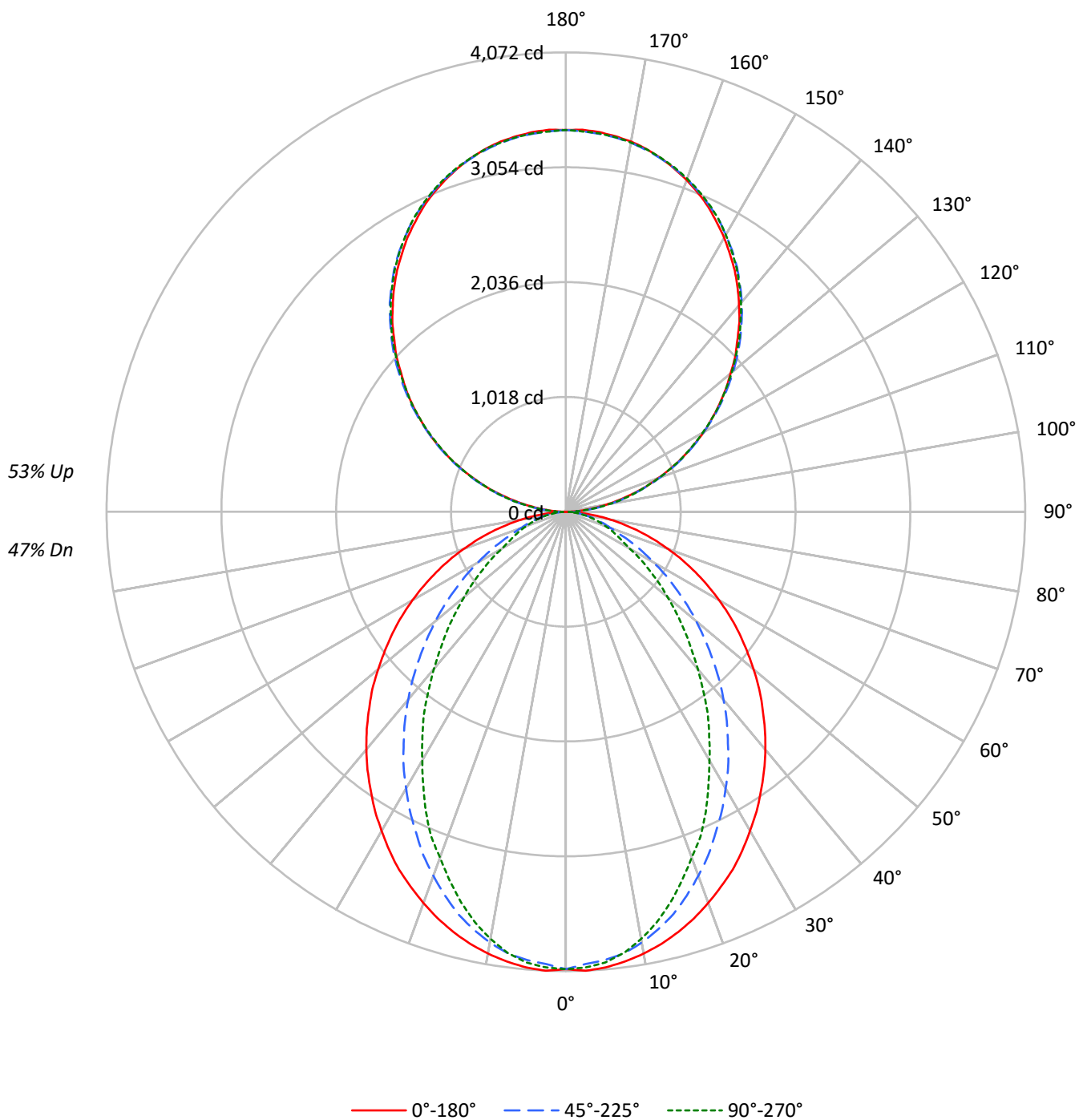
Lumens per Lamp: N/A
Luminaire Lumens: 17807.4 lumens
Efficiency: N/A
Efficacy: 91.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 195.2
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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53			47
1	98	93	90	86	90	86	83	80	72	70	68	59	58	57	48	47	46			40
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	43	41	39			35
3	82	73	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34			30
4	75	64	57	51	69	60	53	48	51	46	42	42	39	36	34	32	30			26
5	69	58	50	44	63	53	47	41	45	40	36	38	34	31	31	28	26			23
6	64	52	44	38	58	48	41	36	41	36	32	35	31	27	28	26	23			20
7	59	47	39	34	54	44	37	32	37	32	28	32	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17			15
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16			14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2845	2845	2845
5°	2849	2800	2818
10°	2821	2746	2727
15°	2782	2655	2586
20°	2731	2531	2413
25°	2678	2391	2246
30°	2607	2248	2033
35°	2538	2094	1846
40°	2468	1934	1632
45°	2386	1757	1438
50°	2301	1578	1248
55°	2213	1387	1065
60°	2110	1187	878
65°	1993	984	791
70°	1850	794	717
75°	1671	701	654
80°	1411	590	570
85°	983	397	434

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2663 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	2.1
10°-20°	1043.0	5.9
20°-30°	1464.4	8.2
30°-40°	1596.2	9.0
40°-50°	1467.1	8.2
50°-60°	1152.2	6.5
60°-70°	750.0	4.2
70°-80°	386.0	2.2
80°-90°	108.2	0.6
90°-100°	209.4	1.2
100°-110°	665.4	3.7
110°-120°	1138.7	6.4
120°-130°	1497.5	8.4
130°-140°	1680.9	9.4
140°-150°	1648.3	9.3
150°-160°	1382.7	7.8
160°-170°	917.0	5.1
170°-180°	320.5	1.8
0°-30°	2887.3	16.2
0°-40°	4483.6	25.2
0°-60°	7102.9	39.9
0°-90°	8347.1	46.9
90°-120°	2013.4	11.3
90°-150°	6840.1	38.4
90°-180°	9460.0	53.1
0°-180°	17807.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4054	4054	4054	4054	4054	
5°	4054	4036	3988	4021	4010	384
15°	3856	3815	3691	3621	3584	1087
25°	3500	3382	3140	2990	2935	1610
35°	3016	2829	2506	2275	2194	1888
45°	2466	2220	1834	1574	1486	1904
55°	1875	1588	1192	972	903	1675
65°	1266	968	638	514	502	1255
75°	675	418	294	268	264	714
85°	158	81	70	70	70	181
90°	3	37	100	94	97	18
95°	149	178	183	183	178	166
105°	614	622	628	634	634	648
115°	1143	1159	1154	1151	1143	1130
125°	1662	1688	1679	1670	1667	1485
135°	2150	2181	2188	2184	2176	1662
145°	2610	2630	2646	2650	2638	1631
155°	2984	2992	3002	3016	3007	1374
165°	3246	3243	3243	3264	3250	916
175°	3378	3370	3364	3384	3367	321
180°	3384	3384	3384	3384	3384	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4054.0	4054.0	4054.0	4054.0	4054.0
2.5°	4072.3	4054.0	4013.5	4050.5	4043.1
5°	4054.0	4035.7	3987.8	4020.9	4010.0
7.5°	4020.9	3999.1	3947.7	3962.1	3943.8
10°	3976.9	3951.2	3878.0	3866.7	3845.0
12.5°	3922.0	3888.9	3789.7	3767.8	3727.3
15°	3855.8	3815.4	3690.8	3621.1	3584.5
17.5°	3778.8	3720.0	3565.9	3485.2	3426.5
20°	3690.8	3617.2	3433.9	3342.4	3261.4
22.5°	3595.5	3510.9	3298.1	3173.5	3118.6
25°	3500.1	3382.5	3140.4	2990.2	2934.9
27.5°	3386.4	3261.4	2993.7	2821.2	2736.7
30°	3265.4	3125.6	2832.2	2645.3	2546.0
32.5°	3147.8	2978.8	2678.3	2458.1	2366.2
35°	3015.9	2828.6	2506.0	2274.8	2193.8
37.5°	2887.4	2685.4	2344.4	2091.0	1999.6
40°	2751.6	2531.7	2175.5	1915.0	1819.7
42.5°	2612.2	2377.5	2007.0	1735.3	1643.8
45°	2465.5	2219.5	1834.5	1573.7	1485.8
47.5°	2326.1	2065.7	1669.5	1408.6	1328.1
50°	2171.9	1911.6	1508.0	1254.5	1177.9
52.5°	2021.3	1746.1	1353.8	1111.7	1042.0
55°	1874.6	1588.5	1192.2	972.3	902.7
57.5°	1724.4	1430.8	1049.4	843.9	785.1
60°	1570.2	1276.8	898.8	711.9	653.2
62.5°	1420.0	1126.5	770.3	594.4	565.2
65°	1265.8	968.4	638.4	513.8	502.5
67.5°	1119.1	821.7	513.8	451.1	440.2
70°	964.9	678.9	425.4	388.9	374.1
72.5°	818.1	546.5	355.8	326.5	319.1
75°	674.9	418.0	293.5	267.8	264.3
77.5°	532.1	297.0	231.2	216.4	209.0
80°	399.8	212.9	175.9	161.6	161.6
82.5°	278.7	143.2	121.1	113.7	113.7
85°	157.7	80.6	69.6	69.6	69.6
87.5°	58.8	29.2	29.2	25.7	25.7
90°	3.0	36.7	100.0	93.9	96.9
92.5°	63.2	85.7	88.7	91.8	91.8
95°	148.9	177.5	182.6	182.6	177.5
97.5°	247.9	274.5	285.7	285.7	285.7
100°	362.2	385.7	393.8	393.8	390.7
102.5°	482.6	499.9	511.1	514.2	511.1
105°	614.2	622.3	628.5	633.6	633.6
107.5°	744.8	757.1	757.1	759.0	744.8
110°	871.3	887.6	887.6	887.6	879.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1008.0	1025.4	1022.3	1014.1	1008.0
115°	1142.6	1159.0	1153.9	1150.8	1142.6
117.5°	1276.3	1298.8	1284.5	1276.3	1268.2
120°	1411.0	1433.4	1411.0	1411.0	1401.9
122.5°	1533.5	1562.0	1547.7	1539.5	1533.5
125°	1662.0	1687.5	1679.4	1670.2	1667.1
127.5°	1787.5	1819.1	1807.9	1795.6	1787.5
130°	1904.8	1941.5	1936.4	1930.3	1919.0
132.5°	2036.4	2065.0	2067.0	2052.7	2044.6
135°	2149.6	2181.3	2187.5	2184.3	2176.2
137.5°	2276.2	2301.7	2306.8	2304.7	2292.5
140°	2387.4	2412.9	2427.1	2427.1	2415.9
142.5°	2501.7	2527.2	2535.3	2538.3	2527.2
145°	2609.8	2630.2	2646.5	2649.6	2638.4
147.5°	2706.7	2732.2	2744.5	2749.6	2738.4
150°	2806.7	2824.0	2835.3	2844.5	2835.3
152.5°	2895.5	2912.8	2927.1	2938.4	2927.1
155°	2984.2	2992.4	3001.6	3015.9	3006.7
157.5°	3060.8	3066.9	3071.9	3092.4	3078.1
160°	3129.1	3135.3	3138.3	3155.7	3143.4
162.5°	3192.3	3192.3	3195.4	3214.8	3200.5
165°	3246.4	3243.4	3243.4	3263.7	3249.5
167.5°	3295.4	3286.2	3286.2	3306.6	3292.4
170°	3332.1	3323.9	3320.9	3341.3	3323.9
172.5°	3357.6	3349.4	3346.4	3366.8	3349.4
175°	3378.1	3369.9	3363.8	3384.1	3366.8
177.5°	3389.3	3381.1	3374.9	3392.3	3374.9
180°	3384.1	3384.1	3384.1	3384.1	3384.1

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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	10.49	11.30	11.48	12.29	13.61	6.45	7.26	7.44	8.25	9.57
	3H	12.17	12.89	13.17	13.90	15.24	7.64	8.36	8.64	9.37	10.70
	4H	12.78	13.46	13.79	14.47	15.82	8.09	8.77	9.10	9.78	11.13
	6H	13.20	13.83	14.23	14.85	16.21	8.41	9.04	9.43	10.05	11.41
	8H	13.33	13.93	14.36	14.96	16.31	8.50	9.09	9.53	10.13	11.48
	12H	13.40	13.96	14.43	14.99	16.37	8.54	9.11	9.58	10.13	11.51
4H	2H	10.51	11.19	11.53	12.20	13.54	7.05	7.73	8.07	8.74	10.08
	3H	12.34	12.90	13.37	13.94	15.30	8.39	8.96	9.42	10.00	11.36
	4H	13.03	13.55	14.07	14.58	15.96	8.94	9.46	9.98	10.49	11.87
	6H	13.55	13.99	14.60	15.05	16.43	9.36	9.81	10.41	10.86	12.24
	8H	13.73	14.14	14.77	15.19	16.58	9.49	9.91	10.54	10.95	12.35
	12H	13.82	14.20	14.89	15.26	16.66	9.55	9.93	10.62	10.99	12.39
8H	4H	13.00	13.41	14.04	14.46	15.85	9.22	9.64	10.27	10.68	12.08
	6H	13.57	13.91	14.64	15.00	16.39	9.74	10.08	10.81	11.17	12.56
	8H	13.79	14.09	14.86	15.16	16.57	9.93	10.24	11.01	11.31	12.72
	12H	13.93	14.19	15.01	15.26	16.71	10.05	10.32	11.13	11.39	12.84
12H	4H	12.95	13.32	14.01	14.38	15.78	9.23	9.60	10.29	10.66	12.06
	6H	13.54	13.84	14.62	14.92	16.33	9.79	10.09	10.87	11.17	12.58
	8H	13.77	14.03	14.85	15.10	16.55	10.00	10.27	11.08	11.34	12.79

END OF REPORT