

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: P920514

Luminaire Tested: DFN2DIP-SQ4F0-110D140US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920514
REPORT IS A COMBINATION OF REPORTS P900196 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D140US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

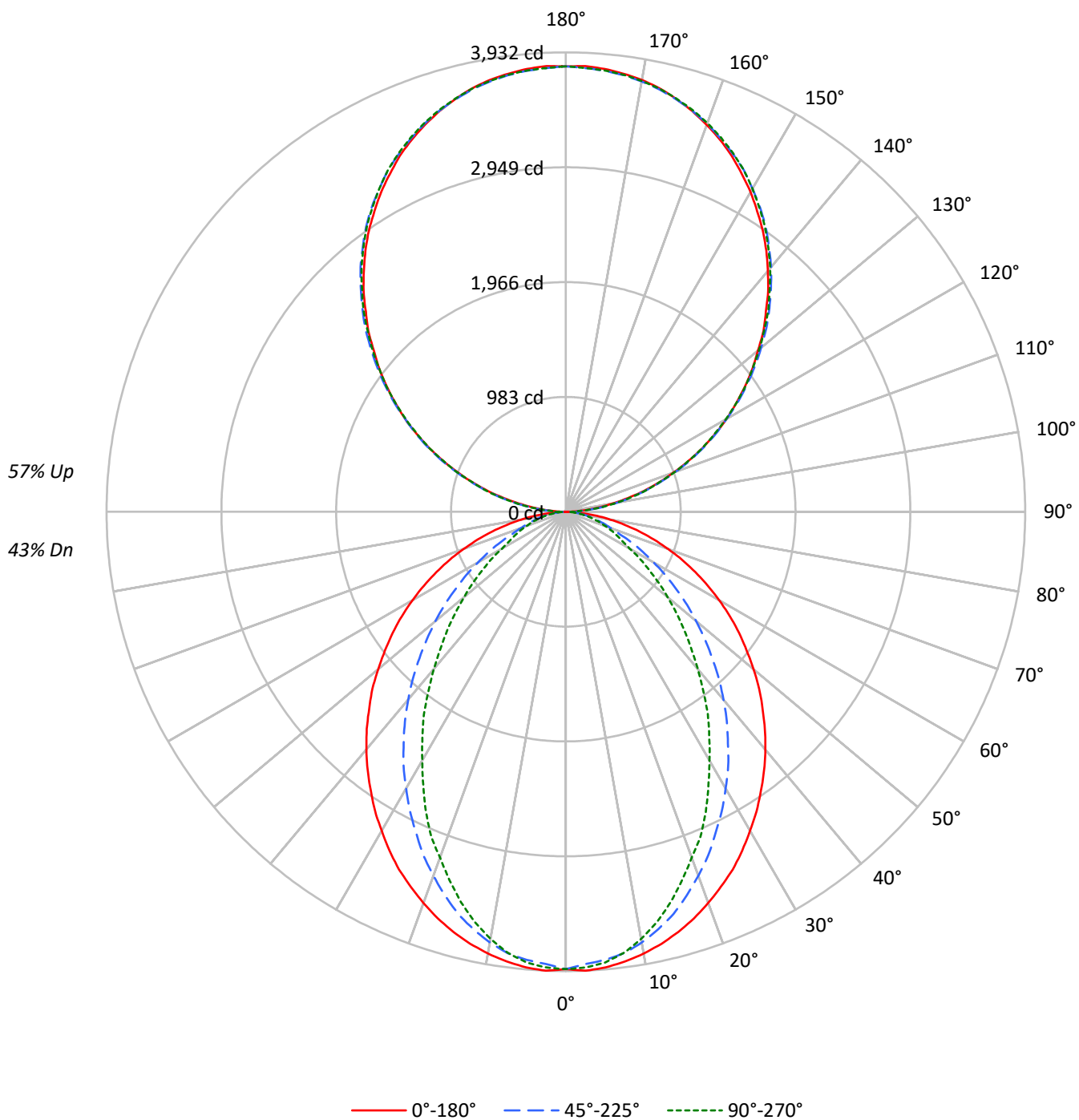
Lumens per Lamp: N/A
Luminaire Lumens: 18718.1 lumens
Efficiency: N/A
Efficacy: 88.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.9
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50
1	97	93	89	85	88	85	82	79	70	68	66	57	55	54	45	44	43
2	88	81	75	70	81	75	70	65	62	58	55	50	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	33	32
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	26	24
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	20	17
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	14

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: 90°

Vertical Angle: 90°

Luminance: 3001 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.0
10°-20°	1007.1	5.4
20°-30°	1413.9	7.6
30°-40°	1541.3	8.2
40°-50°	1416.6	7.6
50°-60°	1112.5	5.9
60°-70°	724.2	3.9
70°-80°	372.8	2.0
80°-90°	106.0	0.6
90°-100°	235.9	1.3
100°-110°	749.5	4.0
110°-120°	1282.7	6.9
120°-130°	1686.9	9.0
130°-140°	1893.5	10.1
140°-150°	1856.8	9.9
150°-160°	1557.6	8.3
160°-170°	1033.0	5.5
170°-180°	361.0	1.9
0°-30°	2787.9	14.9
0°-40°	4329.1	23.1
0°-60°	6858.3	36.6
0°-90°	8061.2	43.1
90°-120°	2268.1	12.1
90°-150°	7705.3	41.2
90°-180°	10657.0	56.9
0°-180°	18718.1	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°	3	41	113	106	109	18
95°	168	200	206	206	200	187
105°	692	701	708	714	714	730
115°	1287	1306	1300	1296	1287	1273
125°	1872	1901	1892	1881	1878	1673
135°	2422	2457	2464	2461	2451	1872
145°	2940	2963	2981	2985	2972	1837
155°	3362	3371	3381	3397	3387	1547
165°	3657	3654	3654	3677	3660	1032
175°	3805	3796	3789	3812	3793	362
180°	3812	3812	3812	3812	3812	

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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°	3.4	41.4	112.6	105.7	109.2
92.5°	71.3	96.5	100.0	103.4	103.4
95°	167.8	200.0	205.7	205.7	200.0
97.5°	279.3	309.2	321.8	321.8	321.8
100°	408.0	434.5	443.6	443.6	440.1
102.5°	543.6	563.2	575.8	579.3	575.8
105°	691.9	701.1	708.0	713.7	713.7
107.5°	839.0	852.8	852.8	855.1	839.0
110°	981.5	999.9	999.9	999.9	990.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1135.5	1155.0	1151.6	1142.4	1135.5
115°	1287.2	1305.6	1299.8	1296.4	1287.2
117.5°	1437.8	1463.1	1447.0	1437.8	1428.6
120°	1589.5	1614.8	1589.5	1589.5	1579.2
122.5°	1727.4	1759.5	1743.5	1734.3	1727.4
125°	1872.2	1900.9	1891.7	1881.4	1877.9
127.5°	2013.5	2049.2	2036.5	2022.7	2013.5
130°	2145.7	2187.1	2181.3	2174.5	2161.8
132.5°	2294.0	2326.2	2328.5	2312.4	2303.2
135°	2421.6	2457.2	2464.1	2460.6	2451.4
137.5°	2564.1	2592.8	2598.6	2596.3	2582.5
140°	2689.3	2718.1	2734.2	2734.2	2721.5
142.5°	2818.0	2846.8	2856.0	2859.5	2846.8
145°	2939.9	2962.9	2981.3	2984.7	2972.1
147.5°	3049.1	3077.8	3091.6	3097.4	3084.7
150°	3161.7	3181.2	3193.9	3204.2	3193.9
152.5°	3261.7	3281.3	3297.4	3309.9	3297.4
155°	3361.7	3370.9	3381.2	3397.3	3387.0
157.5°	3447.9	3454.8	3460.5	3483.5	3467.4
160°	3524.9	3531.8	3535.3	3554.8	3540.9
162.5°	3596.1	3596.1	3599.6	3621.4	3605.3
165°	3657.1	3653.6	3653.6	3676.6	3660.5
167.5°	3712.2	3701.9	3701.9	3724.8	3708.7
170°	3753.6	3744.4	3740.9	3763.9	3744.4
172.5°	3782.4	3773.2	3769.7	3792.7	3773.2
175°	3805.4	3796.1	3789.3	3812.2	3792.7
177.5°	3817.9	3808.8	3801.9	3821.4	3801.9
180°	3812.2	3812.2	3812.2	3812.2	3812.2

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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	9.98	10.76	11.01	11.79	13.16	5.94	6.72	6.97	7.75	9.12
	3H	11.66	12.36	12.69	13.39	14.78	7.13	7.82	8.16	8.86	10.25
	4H	12.27	12.93	13.31	13.97	15.36	7.58	8.24	8.62	9.27	10.67
	6H	12.69	13.30	13.75	14.34	15.75	7.90	8.50	8.95	9.54	10.95
	8H	12.82	13.40	13.88	14.45	15.86	7.99	8.56	9.04	9.62	11.02
	12H	12.88	13.43	13.95	14.48	15.91	8.03	8.58	9.09	9.63	11.05
4H	2H	10.00	10.65	11.05	11.69	13.09	6.54	7.19	7.59	8.23	9.63
	3H	11.83	12.37	12.88	13.44	14.85	7.88	8.43	8.94	9.49	10.90
	4H	12.52	13.02	13.58	14.07	15.51	8.43	8.93	9.49	9.99	11.42
	6H	13.04	13.46	14.11	14.54	15.97	8.85	9.28	9.92	10.35	11.78
	8H	13.21	13.61	14.28	14.68	16.13	8.97	9.38	10.05	10.45	11.89
	12H	13.31	13.67	14.40	14.75	16.20	9.04	9.40	10.13	10.49	11.93
8H	4H	12.48	12.88	13.56	13.95	15.40	8.71	9.11	9.78	10.18	11.62
	6H	13.05	13.38	14.15	14.50	15.93	9.23	9.56	10.32	10.67	12.11
	8H	13.27	13.56	14.37	14.66	16.12	9.42	9.71	10.52	10.80	12.26
	12H	13.41	13.67	14.52	14.76	16.26	9.54	9.79	10.64	10.88	12.38
12H	4H	12.43	12.79	13.52	13.88	15.33	8.71	9.07	9.80	10.16	11.61
	6H	13.03	13.32	14.13	14.41	15.87	9.28	9.57	10.38	10.66	12.12
	8H	13.25	13.50	14.35	14.59	16.09	9.49	9.74	10.59	10.83	12.33