

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: P920583

Luminaire Tested: DFN2DIP-SQ4F0-140D120US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920583
REPORT IS A COMBINATION OF REPORTS P901702 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

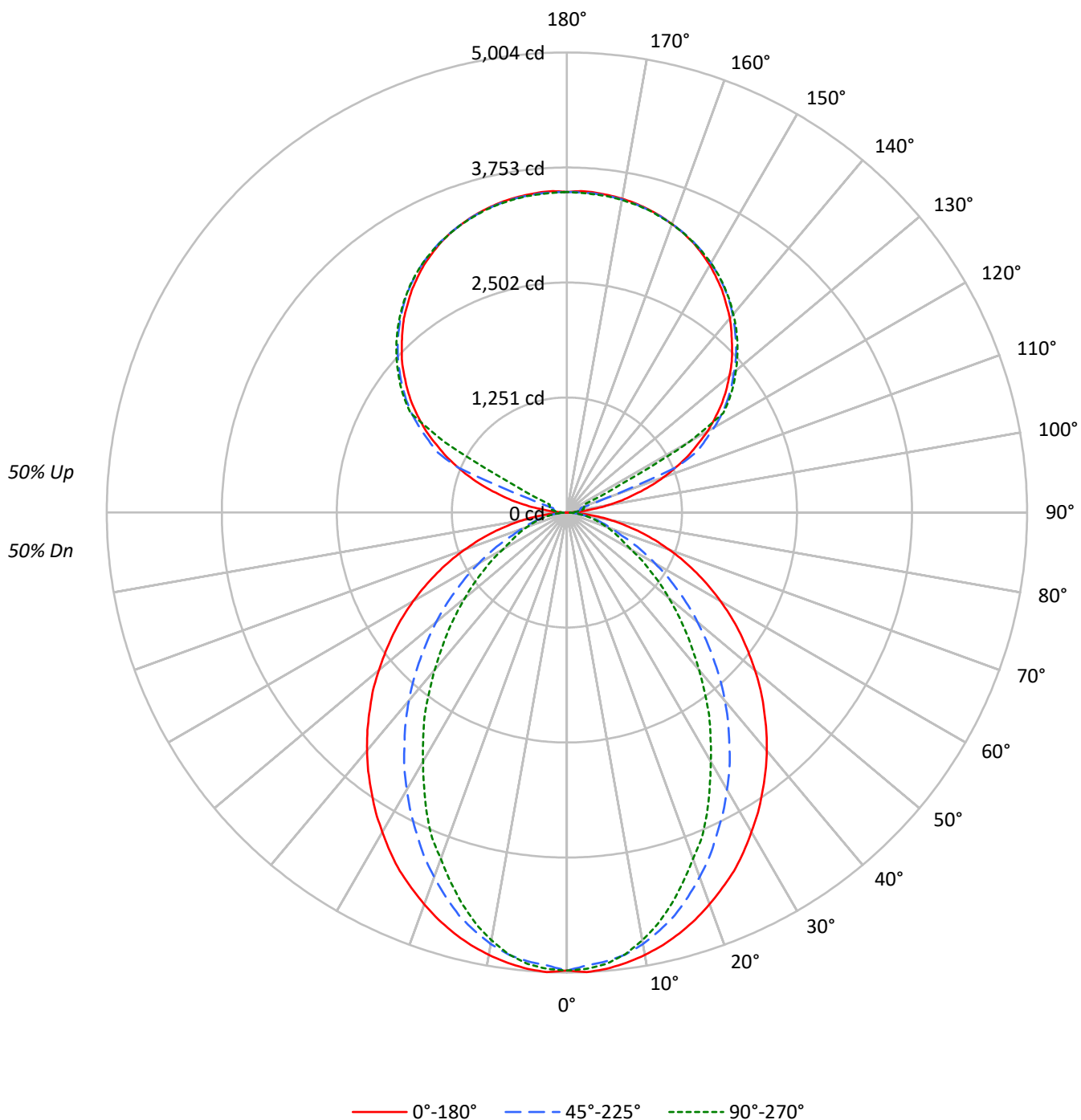
Lumens per Lamp: N/A
Luminaire Lumens: 20474.5 lumens
Efficiency: N/A
Efficacy: 87.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 233.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	94	90	87	91	87	84	81	74	72	69	62	60	59	50	49	48
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	43	41
3	82	73	66	60	76	68	62	57	58	53	50	49	45	43	40	38	36
4	76	65	57	52	70	60	54	49	52	47	43	44	40	37	36	34	31
5	70	58	50	45	64	54	47	42	47	41	37	40	35	32	33	30	28
6	64	52	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25
7	59	47	40	34	55	44	37	32	38	33	29	33	29	25	28	24	22
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20
9	52	40	32	27	48	37	30	26	32	27	23	28	24	21	24	20	18
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3496	3496	3496
5°	3501	3441	3463
10°	3467	3374	3351
15°	3419	3263	3178
20°	3356	3110	2965
25°	3291	2938	2759
30°	3204	2762	2498
35°	3119	2573	2269
40°	3032	2377	2005
45°	2932	2159	1767
50°	2828	1939	1533
55°	2719	1705	1309
60°	2593	1459	1079
65°	2449	1209	972
70°	2273	976	881
75°	2053	862	804
80°	1734	725	701
85°	1207	488	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2932 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	466.9	2.3
10°-20°	1281.8	6.3
20°-30°	1799.5	8.8
30°-40°	1961.6	9.6
40°-50°	1802.9	8.8
50°-60°	1415.9	6.9
60°-70°	921.6	4.5
70°-80°	474.4	2.3
80°-90°	127.3	0.6
90°-100°	115.0	0.6
100°-110°	428.6	2.1
110°-120°	1136.8	5.6
120°-130°	1885.4	9.2
130°-140°	2002.8	9.8
140°-150°	1861.3	9.1
150°-160°	1496.5	7.3
160°-170°	964.3	4.7
170°-180°	331.9	1.6
0°-30°	3548.2	17.3
0°-40°	5509.8	26.9
0°-60°	8728.7	42.6
0°-90°	10252.0	50.1
90°-120°	1680.4	8.2
90°-150°	7429.9	36.3
90°-180°	10223.0	49.9
0°-180°	20474.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4982	4982	4982	4982	4982	
5°	4982	4959	4900	4941	4928	472
15°	4738	4689	4536	4450	4405	1335
25°	4301	4157	3859	3675	3607	1978
35°	3706	3476	3080	2795	2696	2320
45°	3030	2728	2254	1934	1826	2340
55°	2304	1952	1465	1195	1109	2059
65°	1556	1190	784	631	618	1542
75°	829	514	361	329	325	877
85°	194	99	86	86	86	222
90°	2	30	50	63	68	19
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4981.9	4981.9	4981.9	4981.9	4981.9
2.5°	5004.4	4981.9	4932.1	4977.6	4968.5
5°	4981.9	4959.4	4900.5	4941.3	4927.8
7.5°	4941.3	4914.4	4851.3	4869.0	4846.6
10°	4887.2	4855.6	4765.7	4751.8	4725.0
12.5°	4819.7	4779.1	4657.1	4630.3	4580.6
15°	4738.4	4688.6	4535.6	4450.0	4405.0
17.5°	4643.7	4571.5	4382.0	4283.0	4210.8
20°	4535.6	4445.2	4219.9	4107.5	4008.0
22.5°	4418.4	4314.6	4053.0	3899.9	3832.5
25°	4301.2	4156.7	3859.3	3674.6	3606.6
27.5°	4161.5	4008.0	3678.9	3467.0	3363.2
30°	4012.8	3841.1	3480.4	3250.8	3128.8
32.5°	3868.3	3660.7	3291.4	3020.7	2907.8
35°	3706.2	3476.1	3079.5	2795.4	2695.9
37.5°	3548.3	3300.0	2881.0	2569.6	2457.2
40°	3381.4	3111.1	2673.4	2353.5	2236.3
42.5°	3210.1	2921.7	2466.3	2132.4	2020.0
45°	3029.8	2727.5	2254.4	1933.9	1825.8
47.5°	2858.5	2538.6	2051.6	1731.1	1632.1
50°	2669.1	2349.1	1853.0	1541.7	1447.4
52.5°	2484.0	2145.8	1663.6	1366.1	1280.5
55°	2303.7	1952.1	1465.2	1194.9	1109.2
57.5°	2119.0	1758.3	1289.6	1037.1	964.8
60°	1929.6	1568.9	1104.5	874.9	802.6
62.5°	1745.0	1384.3	946.7	730.4	694.6
65°	1555.6	1190.1	784.5	631.4	617.5
67.5°	1375.2	1009.8	631.4	554.4	541.0
70°	1185.8	834.2	522.8	477.9	459.7
72.5°	1005.5	671.6	437.2	401.3	392.3
75°	829.4	513.8	360.7	329.1	324.8
77.5°	653.9	365.0	284.1	266.0	256.8
80°	491.3	261.7	216.2	198.5	198.5
82.5°	342.5	176.0	148.8	139.7	139.7
85°	193.7	99.0	85.6	85.6	85.6
87.5°	72.2	35.9	35.9	31.6	31.6
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.6	1650.0	1693.2	1332.0	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.2	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2941.9	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.8
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.6	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.5	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

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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	11.51	12.35	12.48	13.32	14.59	7.48	8.31	8.44	9.28	10.55
	3H	13.20	13.94	14.17	14.92	16.22	8.66	9.41	9.64	10.39	11.69
	4H	13.81	14.51	14.80	15.50	16.80	9.12	9.82	10.10	10.80	12.11
	6H	14.23	14.88	15.23	15.87	17.19	9.44	10.08	10.44	11.08	12.39
	8H	14.36	14.98	15.37	15.98	17.30	9.53	10.14	10.53	11.15	12.46
	12H	14.43	15.01	15.44	16.01	17.35	9.57	10.16	10.58	11.16	12.49
4H	2H	11.53	12.24	12.53	13.22	14.53	8.07	8.78	9.07	9.76	11.07
	3H	13.37	13.95	14.37	14.97	16.28	9.42	10.01	10.43	11.02	12.34
	4H	14.06	14.60	15.07	15.60	16.95	9.97	10.51	10.98	11.52	12.86
	6H	14.58	15.04	15.60	16.07	17.41	10.39	10.85	11.42	11.88	13.22
	8H	14.76	15.19	15.78	16.21	17.56	10.52	10.95	11.55	11.98	13.33
	12H	14.86	15.24	15.90	16.28	17.64	10.59	10.97	11.63	12.01	13.37
8H	4H	14.03	14.46	15.05	15.48	16.84	10.26	10.68	11.28	11.71	13.06
	6H	14.60	14.95	15.65	16.02	17.37	10.78	11.13	11.82	12.20	13.55
	8H	14.82	15.13	15.88	16.18	17.55	10.97	11.28	12.02	12.33	13.70
	12H	14.96	15.24	16.02	16.28	17.69	11.09	11.36	12.15	12.41	13.82
12H	4H	13.98	14.37	15.02	15.41	16.77	10.26	10.65	11.30	11.69	13.05
	6H	14.58	14.89	15.63	15.94	17.31	10.83	11.14	11.88	12.19	13.56
	8H	14.80	15.07	15.86	16.12	17.53	11.04	11.31	12.10	12.36	13.77

END OF REPORT