

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: P926685

Luminaire Tested: DFN2DIP-TR4F0-120D110US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926685
REPORT IS A COMBINATION OF REPORTS P902032 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D110US950-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

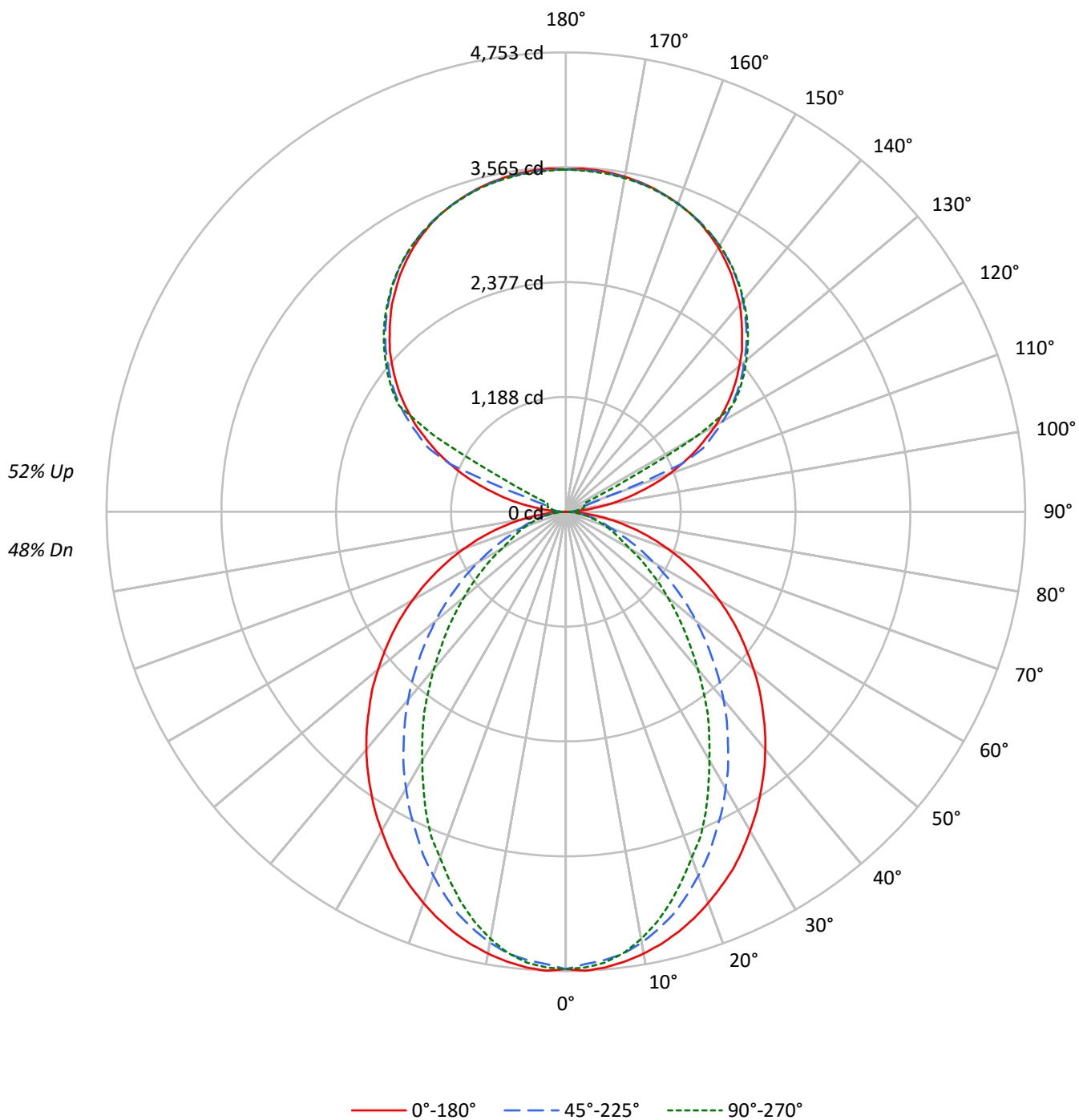
Lumens per Lamp: N/A
Luminaire Lumens: 20119.8 lumens
Efficiency: N/A
Efficacy: 95.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	98	98	98	98	82	82	82	68	68	68	55	55	55
1	98	94	90	87	90	87	83	80	73	71	69	60	59	58	49	48	47
2	90	82	77	72	82	76	71	67	64	61	58	54	51	49	44	42	40
3	82	73	66	60	75	67	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	35	33	30
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	36	42	36	32	35	31	28	29	26	24
7	59	47	39	34	54	44	37	32	38	32	29	32	28	25	27	24	21
8	55	43	35	30	51	40	33	29	35	29	25	30	25	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	27	23	29	24	21	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3759	3759	3759
5°	3765	3699	3723
10°	3728	3627	3601
15°	3676	3507	3414
20°	3609	3341	3184
25°	3539	3156	2962
30°	3446	2966	2681
35°	3354	2762	2433
40°	3261	2551	2150
45°	3153	2316	1893
50°	3041	2080	1642
55°	2925	1827	1401
60°	2790	1562	1153
65°	2634	1294	1038
70°	2446	1043	939
75°	2209	919	854
80°	1867	771	740
85°	1301	515	556

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3153 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.4	2.2
10°-20°	1217.3	6.1
20°-30°	1709.1	8.5
30°-40°	1863.0	9.3
40°-50°	1712.3	8.5
50°-60°	1344.7	6.7
60°-70°	875.3	4.4
70°-80°	450.6	2.2
80°-90°	121.3	0.6
90°-100°	116.8	0.6
100°-110°	435.4	2.2
110°-120°	1154.6	5.7
120°-130°	1915.0	9.5
130°-140°	2034.2	10.1
140°-150°	1890.5	9.4
150°-160°	1519.9	7.6
160°-170°	979.4	4.9
170°-180°	337.1	1.7
0°-30°	3369.8	16.7
0°-40°	5232.8	26.0
0°-60°	8289.9	41.2
0°-90°	9737.0	48.4
90°-120°	1706.7	8.5
90°-150°	7546.4	37.5
90°-180°	10383.0	51.6
0°-180°	20119.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4732	4732	4732	4732	4732	
5°	4732	4710	4654	4693	4680	449
15°	4500	4453	4308	4226	4184	1268
25°	4085	3948	3665	3490	3425	1879
35°	3520	3301	2925	2655	2560	2203
45°	2878	2590	2141	1837	1734	2222
55°	2188	1854	1392	1135	1054	1955
65°	1477	1130	745	600	586	1465
75°	788	488	343	312	308	833
85°	184	94	81	81	81	211
90°	2	31	51	64	69	19
95°	166	82	100	113	110	197
105°	779	856	156	184	195	832
115°	1474	1517	1581	395	210	1451
125°	2083	2117	2166	2183	2191	1858
135°	2578	2619	2642	2668	2663	1992
145°	2991	2988	3032	3050	3037	1871
155°	3293	3270	3301	3316	3296	1517
165°	3470	3454	3462	3480	3462	980
175°	3549	3531	3536	3554	3529	338
180°	3542	3542	3542	3542	3542	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4731.5	4731.5	4731.5	4731.5	4731.5
2.5°	4752.8	4731.5	4684.2	4727.4	4718.7
5°	4731.5	4710.1	4654.2	4692.8	4680.1
7.5°	4692.8	4667.3	4607.4	4624.2	4602.9
10°	4641.5	4611.5	4526.1	4512.9	4487.5
12.5°	4577.4	4538.8	4422.9	4397.6	4350.3
15°	4500.2	4453.0	4307.6	4226.2	4183.6
17.5°	4410.2	4341.7	4161.7	4067.8	3999.2
20°	4307.6	4221.7	4007.8	3901.0	3806.5
22.5°	4196.3	4097.7	3849.2	3703.8	3639.8
25°	4085.0	3947.7	3665.2	3489.8	3425.3
27.5°	3952.3	3806.5	3493.9	3292.7	3194.1
30°	3811.0	3648.0	3305.4	3087.3	2971.5
32.5°	3673.9	3476.7	3126.0	2868.9	2761.6
35°	3519.9	3301.3	2924.7	2654.9	2560.3
37.5°	3369.9	3134.2	2736.2	2440.4	2333.7
40°	3211.4	2954.7	2539.1	2235.1	2123.8
42.5°	3048.7	2774.8	2342.4	2025.2	1918.5
45°	2877.5	2590.4	2141.1	1836.7	1734.0
47.5°	2714.8	2410.9	1948.4	1644.1	1550.1
50°	2535.0	2231.0	1759.9	1464.2	1374.7
52.5°	2359.1	2037.9	1580.0	1297.4	1216.2
55°	2187.9	1854.0	1391.5	1134.8	1053.5
57.5°	2012.5	1670.0	1224.7	984.9	916.3
60°	1832.6	1490.1	1048.9	830.9	762.3
62.5°	1657.3	1314.7	899.0	693.7	659.6
65°	1477.4	1130.3	745.1	599.7	586.5
67.5°	1306.1	959.0	599.7	526.5	513.8
70°	1126.2	792.3	496.6	453.8	436.6
72.5°	955.0	637.8	415.2	381.1	372.5
75°	787.7	487.9	342.6	312.5	308.4
77.5°	621.1	346.6	269.9	252.6	243.9
80°	466.6	248.5	205.3	188.5	188.5
82.5°	325.3	167.1	141.3	132.6	132.6
85°	184.0	94.1	81.3	81.3	81.3
87.5°	68.6	34.1	34.1	30.0	30.0
90°	2.5	30.7	51.1	64.2	69.1
92.5°	64.2	53.9	61.4	66.7	69.1
95°	166.5	81.9	99.8	112.9	110.2
97.5°	299.7	89.8	130.5	138.4	140.9
100°	453.7	102.6	146.1	166.5	171.6
102.5°	622.6	617.7	151.2	179.3	187.2
105°	779.0	856.0	156.5	184.4	194.8
107.5°	961.1	1024.9	161.6	189.6	200.0
110°	1135.4	1189.0	448.6	192.3	202.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1299.4	1345.3	1301.8	197.2	205.1
115°	1473.5	1517.0	1581.3	394.7	210.3
117.5°	1624.8	1675.9	1719.7	1353.0	681.6
120°	1793.9	1832.3	1878.5	1909.2	1563.2
122.5°	1937.3	1978.3	2029.7	2045.0	2047.8
125°	2083.3	2116.8	2165.5	2183.4	2191.1
127.5°	2216.6	2252.5	2291.1	2316.7	2319.2
130°	2342.3	2383.4	2411.3	2439.7	2437.3
132.5°	2470.4	2503.9	2531.9	2555.0	2552.6
135°	2578.2	2619.2	2642.0	2668.0	2662.7
137.5°	2690.8	2721.5	2747.3	2772.9	2765.3
140°	2800.9	2821.6	2849.6	2872.7	2859.9
142.5°	2893.4	2911.3	2944.5	2964.9	2952.2
145°	2990.8	2988.0	3031.5	3049.6	3036.8
147.5°	3075.1	3067.5	3111.0	3123.8	3113.8
150°	3157.3	3139.3	3180.3	3195.6	3182.8
152.5°	3226.3	3205.9	3244.3	3259.8	3241.9
155°	3293.0	3270.1	3300.8	3316.1	3295.7
157.5°	3346.8	3326.4	3349.6	3367.5	3346.8
160°	3393.1	3377.5	3393.1	3408.3	3390.3
162.5°	3433.8	3418.7	3431.4	3449.4	3426.3
165°	3469.8	3454.5	3462.2	3480.1	3462.2
167.5°	3498.0	3482.6	3490.5	3508.4	3485.3
170°	3521.2	3505.7	3510.8	3528.8	3505.7
172.5°	3536.4	3521.2	3526.4	3544.3	3521.2
175°	3549.2	3531.2	3536.4	3554.4	3528.8
177.5°	3554.4	3536.4	3539.1	3557.1	3534.0
180°	3541.6	3541.6	3541.6	3541.6	3541.6

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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	11.59	12.41	12.57	13.39	14.69	7.56	8.38	8.54	9.37	10.66
	3H	13.27	14.00	14.26	14.99	16.31	8.75	9.48	9.74	10.48	11.80
	4H	13.87	14.57	14.88	15.56	16.89	9.20	9.89	10.20	10.89	12.22
	6H	14.30	14.93	15.31	15.93	17.27	9.52	10.16	10.54	11.16	12.50
	8H	14.42	15.03	15.44	16.05	17.38	9.61	10.22	10.63	11.24	12.57
	12H	14.48	15.06	15.50	16.07	17.43	9.66	10.23	10.68	11.25	12.61
4H	2H	11.61	12.30	12.62	13.30	14.62	8.16	8.85	9.17	9.85	11.17
	3H	13.44	14.01	14.45	15.04	16.38	9.51	10.08	10.52	11.11	12.45
	4H	14.13	14.65	15.15	15.67	17.03	10.06	10.58	11.08	11.60	12.96
	6H	14.64	15.09	15.68	16.14	17.50	10.47	10.93	11.51	11.97	13.33
	8H	14.82	15.24	15.85	16.27	17.65	10.60	11.02	11.64	12.06	13.44
	12H	14.91	15.29	15.96	16.34	17.72	10.67	11.05	11.72	12.10	13.48
8H	4H	14.09	14.51	15.13	15.55	16.93	10.33	10.76	11.37	11.79	13.17
	6H	14.66	15.01	15.72	16.08	17.46	10.85	11.20	11.91	12.28	13.65
	8H	14.88	15.18	15.94	16.24	17.64	11.05	11.35	12.11	12.41	13.80
	12H	15.01	15.28	16.08	16.34	17.77	11.16	11.43	12.23	12.49	13.92
12H	4H	14.04	14.42	15.10	15.48	16.86	10.34	10.72	11.39	11.77	13.15
	6H	14.63	14.94	15.70	16.00	17.39	10.90	11.21	11.97	12.27	13.66
	8H	14.85	15.12	15.92	16.18	17.61	11.11	11.38	12.18	12.44	13.87