

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: P921161

Luminaire Tested: DFN2DIP-TR4F0-100D120US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921161
REPORT IS A COMBINATION OF REPORTS P902046 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D120US935-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

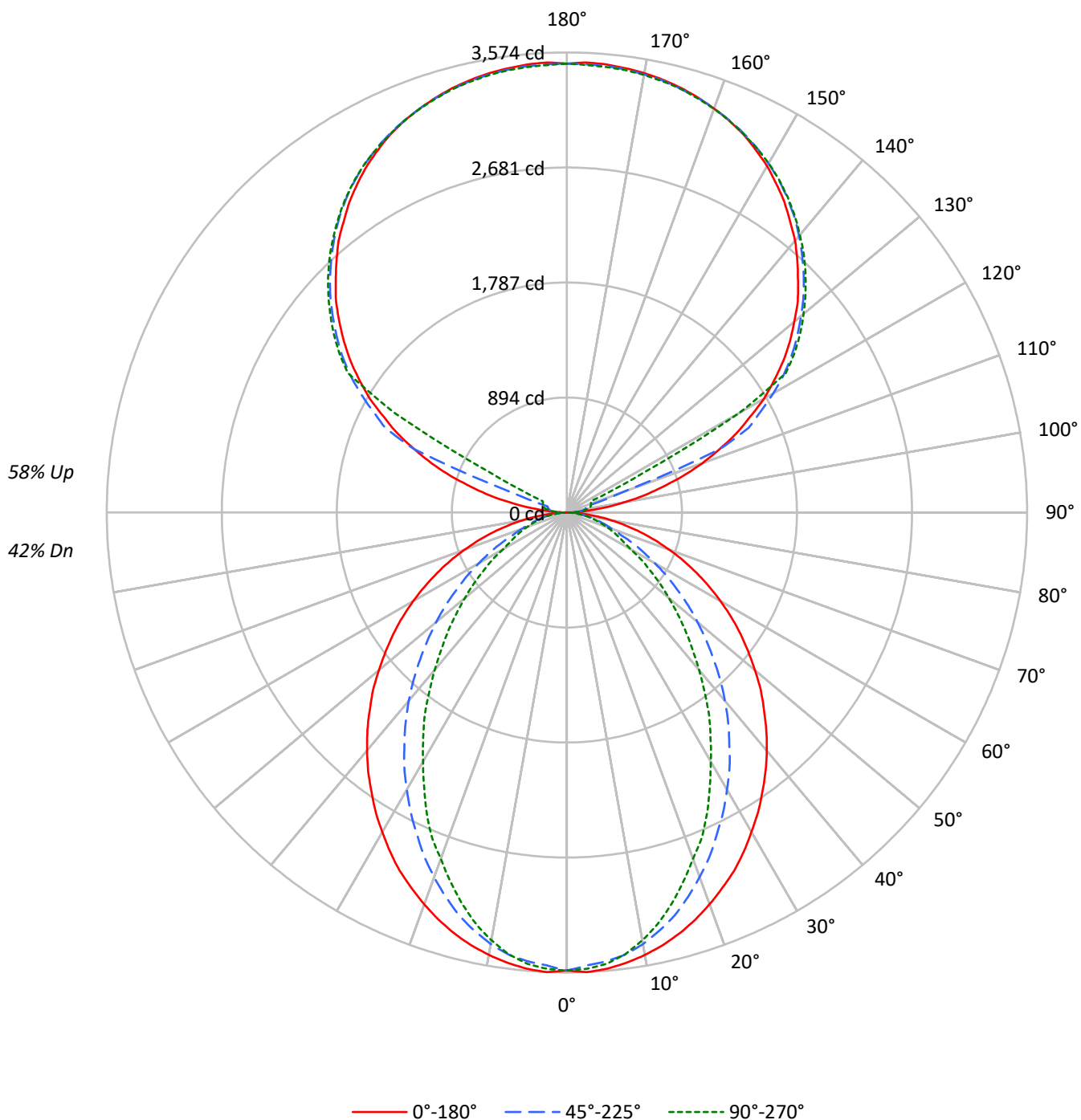
Lumens per Lamp: N/A
Luminaire Lumens: 17547.1 lumens
Efficiency: N/A
Efficacy: 91.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 192.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	63	63	63	49	49	49
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	43	43	42
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36
3	81	72	65	59	73	66	60	55	55	50	46	44	41	39	35	33	31
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	39	34	30	32	29	26	26	23	21
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17
9	50	38	31	26	46	35	29	25	30	25	22	25	21	18	20	17	15
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2827	2827	2827
5°	2832	2782	2800
10°	2803	2727	2709
15°	2765	2637	2568
20°	2714	2513	2395
25°	2662	2374	2228
30°	2592	2231	2016
35°	2523	2077	1830
40°	2453	1918	1617
45°	2371	1742	1424
50°	2287	1564	1235
55°	2200	1374	1053
60°	2098	1175	867
65°	1981	973	780
70°	1840	784	706
75°	1662	691	642
80°	1404	580	557
85°	979	387	418

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2371 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	1.9
10°-20°	915.5	5.2
20°-30°	1285.4	7.3
30°-40°	1401.2	8.0
40°-50°	1287.8	7.3
50°-60°	1011.4	5.8
60°-70°	658.3	3.8
70°-80°	338.9	1.9
80°-90°	92.7	0.5
90°-100°	115.0	0.7
100°-110°	428.6	2.4
110°-120°	1136.8	6.5
120°-130°	1885.4	10.7
130°-140°	2002.8	11.4
140°-150°	1861.3	10.6
150°-160°	1496.5	8.5
160°-170°	964.3	5.5
170°-180°	331.9	1.9
0°-30°	2534.4	14.4
0°-40°	3935.6	22.4
0°-60°	6234.8	35.5
0°-90°	7324.6	41.7
90°-120°	1680.4	9.6
90°-150°	7429.9	42.3
90°-180°	10223.0	58.3
0°-180°	17547.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	2	30	50	63	68	16
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°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
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	9.93	10.70	10.96	11.73	13.12	5.90	6.67	6.93	7.70	9.09
	3H	11.60	12.29	12.64	13.33	14.74	7.09	7.77	8.13	8.82	10.22
	4H	12.21	12.86	13.26	13.90	15.32	7.54	8.19	8.59	9.23	10.64
	6H	12.63	13.22	13.69	14.27	15.70	7.85	8.45	8.92	9.50	10.93
	8H	12.75	13.32	13.82	14.38	15.80	7.94	8.51	9.01	9.58	11.00
	12H	12.81	13.35	13.88	14.41	15.85	7.99	8.53	9.06	9.58	11.03
4H	2H	9.94	10.59	11.00	11.63	13.05	6.49	7.14	7.55	8.18	9.60
	3H	11.76	12.30	12.83	13.38	14.80	7.84	8.38	8.90	9.45	10.88
	4H	12.45	12.95	13.53	14.01	15.46	8.38	8.88	9.45	9.94	11.39
	6H	12.96	13.39	14.05	14.48	15.92	8.80	9.22	9.88	10.31	11.75
	8H	13.14	13.53	14.22	14.61	16.07	8.93	9.32	10.01	10.40	11.86
	12H	13.23	13.59	14.33	14.68	16.14	8.99	9.35	10.09	10.44	11.90
8H	4H	12.42	12.81	13.50	13.89	15.35	8.66	9.05	9.74	10.13	11.59
	6H	12.98	13.31	14.08	14.43	15.88	9.17	9.50	10.28	10.62	12.08
	8H	13.20	13.48	14.31	14.59	16.06	9.37	9.65	10.48	10.76	12.23
	12H	13.33	13.58	14.45	14.68	16.20	9.48	9.74	10.60	10.83	12.35
12H	4H	12.37	12.72	13.46	13.82	15.28	8.66	9.02	9.76	10.11	11.57
	6H	12.96	13.24	14.07	14.35	15.82	9.22	9.51	10.33	10.61	12.09
	8H	13.17	13.42	14.29	14.52	16.04	9.43	9.68	10.55	10.78	12.30

END OF REPORT