

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: P915597

Luminaire Tested: DFN2DIP-TR4F0-070D120US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915597
REPORT IS A COMBINATION OF REPORTS P902040 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D120US927-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

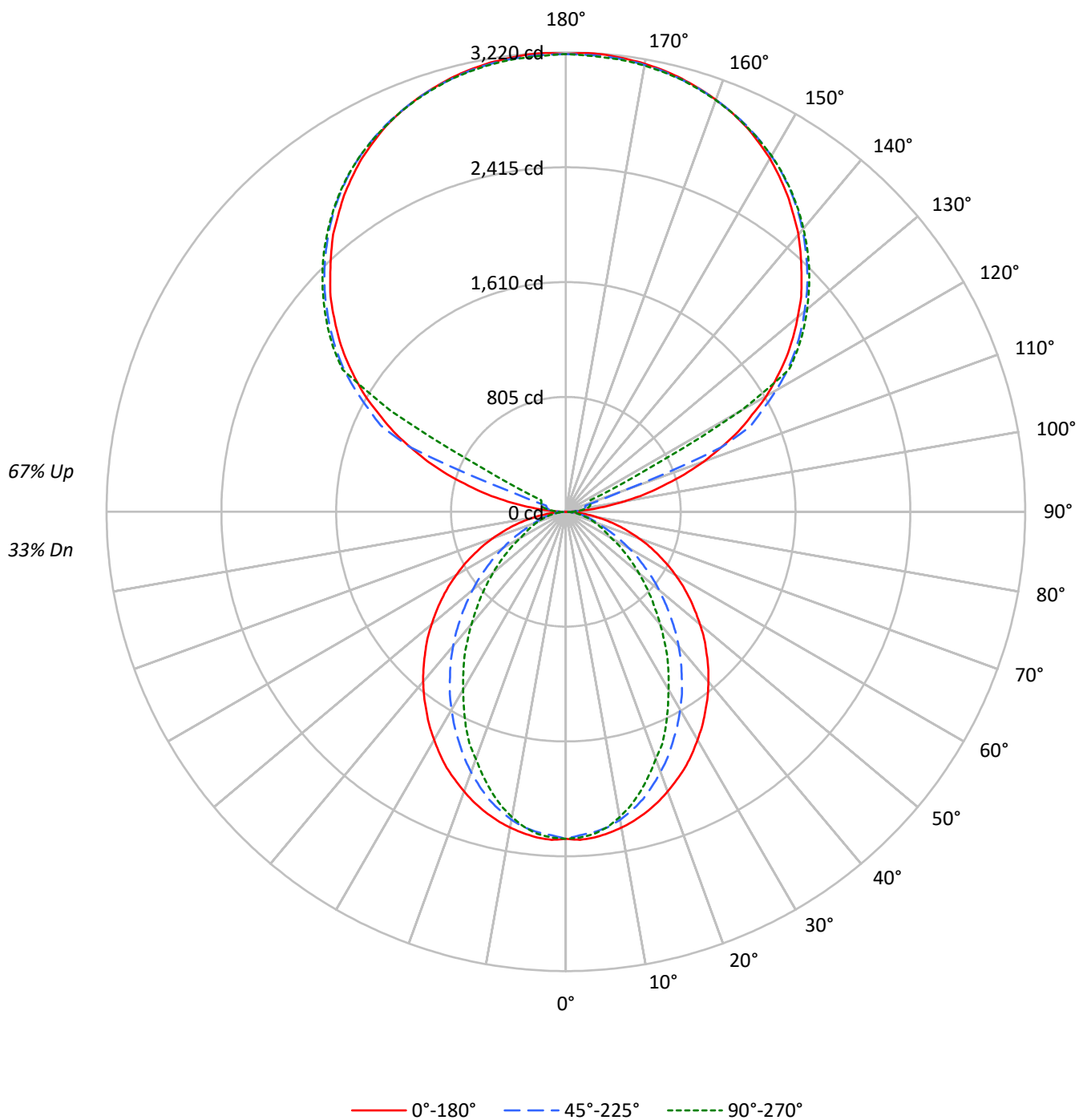
Lumens per Lamp: N/A
Luminaire Lumens: 14124.5 lumens
Efficiency: N/A
Efficacy: 90.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 156.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	87	83	85	82	79	76	65	63	61	50	49	48	37	36	35
2	86	79	73	69	78	72	67	63	58	54	51	45	42	40	33	31	30
3	79	70	63	57	71	63	57	53	51	47	43	40	37	35	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	36	32	30	26	24	23
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20
6	61	50	42	36	55	45	38	34	37	32	28	29	25	23	22	19	18
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	18	16
8	52	41	33	28	47	37	31	26	30	26	22	24	21	18	18	16	14
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1821	1821	1821
5°	1824	1792	1803
10°	1806	1757	1745
15°	1781	1699	1654
20°	1748	1619	1542
25°	1714	1529	1435
30°	1669	1437	1299
35°	1625	1338	1179
40°	1580	1236	1041
45°	1527	1122	917
50°	1473	1007	795
55°	1417	885	679
60°	1351	757	558
65°	1276	627	503
70°	1185	505	455
75°	1070	445	414
80°	904	374	358
85°	630	249	269

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1704 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	214.8	1.5
10°-20°	589.7	4.2
20°-30°	827.9	5.9
30°-40°	902.4	6.4
40°-50°	829.4	5.9
50°-60°	651.4	4.6
60°-70°	424.0	3.0
70°-80°	218.2	1.5
80°-90°	61.4	0.4
90°-100°	105.8	0.7
100°-110°	394.4	2.8
110°-120°	1045.9	7.4
120°-130°	1734.7	12.3
130°-140°	1842.7	13.0
140°-150°	1712.6	12.1
150°-160°	1376.9	9.7
160°-170°	887.2	6.3
170°-180°	305.4	2.2
0°-30°	1632.3	11.6
0°-40°	2534.7	17.9
0°-60°	4015.5	28.4
0°-90°	4719.1	33.4
90°-120°	1546.1	10.9
90°-150°	6836.0	48.4
90°-180°	9405.0	66.6
0°-180°	14124.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2282	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	2	28	46	58	63	13
95°	151	74	90	102	100	179
105°	706	776	142	167	176	754
115°	1335	1374	1432	358	190	1314
125°	1887	1918	1962	1978	1985	1683
135°	2335	2373	2393	2417	2412	1804
145°	2709	2707	2746	2762	2751	1694
155°	2983	2962	2990	3004	2986	1375
165°	3143	3129	3136	3153	3136	888
175°	3215	3199	3204	3220	3197	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2291.9	2291.9	2291.9	2291.9	2291.9
2.5°	2302.2	2291.9	2269.0	2289.9	2285.7
5°	2291.9	2281.5	2254.5	2273.2	2267.0
7.5°	2273.2	2260.8	2231.8	2239.9	2229.6
10°	2248.3	2233.8	2192.4	2186.0	2173.7
12.5°	2217.2	2198.5	2142.5	2130.1	2107.2
15°	2179.8	2157.0	2086.5	2047.2	2026.5
17.5°	2136.3	2103.1	2015.9	1970.3	1937.1
20°	2086.5	2044.9	1941.3	1889.6	1843.8
22.5°	2032.7	1984.9	1864.5	1794.1	1763.1
25°	1978.7	1912.2	1775.4	1690.4	1659.2
27.5°	1914.5	1843.8	1692.4	1595.0	1547.2
30°	1846.0	1767.0	1601.1	1495.5	1439.4
32.5°	1779.6	1684.1	1514.2	1389.6	1337.7
35°	1704.9	1599.1	1416.7	1286.0	1240.2
37.5°	1632.4	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.9	1082.7	1028.7
42.5°	1476.8	1344.1	1134.6	981.0	929.3
45°	1393.8	1254.7	1037.1	889.7	839.9
47.5°	1315.0	1167.8	943.8	796.4	750.8
50°	1227.9	1080.7	852.5	709.2	665.9
52.5°	1142.7	987.1	765.3	628.4	589.1
55°	1059.8	898.0	674.0	549.7	510.3
57.5°	974.9	808.9	593.3	477.1	443.9
60°	887.7	721.8	508.1	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.6	547.5	360.9	290.5	284.1
67.5°	632.6	464.5	290.5	255.0	248.9
70°	545.5	383.7	240.5	219.8	211.4
72.5°	462.6	309.0	201.1	184.7	180.5
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.7	122.3	118.2
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.1	45.6	39.4	39.4	39.4
87.5°	33.2	16.5	16.5	14.5	14.5
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.8	74.1	90.4	102.3	99.8
97.5°	271.6	81.4	118.3	125.4	127.6
100°	411.0	92.9	132.3	150.8	155.5
102.5°	564.0	559.6	137.0	162.4	169.5
105°	705.7	775.5	141.7	167.1	176.4
107.5°	870.5	928.4	146.4	171.7	181.1
110°	1028.5	1077.0	406.3	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1177.1	1218.7	1179.3	178.6	185.8
115°	1334.7	1374.2	1432.3	357.5	190.5
117.5°	1471.8	1518.1	1557.8	1225.6	617.5
120°	1625.1	1659.8	1701.7	1729.6	1416.1
122.5°	1754.9	1792.2	1838.7	1852.5	1855.0
125°	1887.2	1917.6	1961.7	1977.9	1984.8
127.5°	2007.9	2040.5	2075.5	2098.6	2100.9
130°	2121.8	2159.0	2184.4	2210.0	2207.8
132.5°	2237.8	2268.2	2293.5	2314.5	2312.3
135°	2335.4	2372.7	2393.3	2416.8	2412.1
137.5°	2437.5	2465.3	2488.7	2511.8	2505.0
140°	2537.3	2556.0	2581.3	2602.3	2590.7
142.5°	2621.0	2637.3	2667.4	2685.8	2674.2
145°	2709.3	2706.8	2746.2	2762.5	2750.8
147.5°	2785.6	2778.7	2818.2	2829.8	2820.6
150°	2860.0	2843.8	2881.0	2894.8	2883.2
152.5°	2922.6	2904.1	2938.9	2952.9	2936.7
155°	2983.0	2962.3	2990.2	3004.0	2985.5
157.5°	3031.8	3013.3	3034.3	3050.5	3031.8
160°	3073.7	3059.6	3073.7	3087.4	3071.2
162.5°	3110.7	3096.9	3108.4	3124.7	3103.8
165°	3143.1	3129.4	3136.2	3152.6	3136.2
167.5°	3168.8	3154.7	3161.9	3178.2	3157.2
170°	3189.7	3175.7	3180.4	3196.6	3175.7
172.5°	3203.5	3189.7	3194.5	3210.7	3189.7
175°	3215.1	3198.8	3203.5	3219.8	3196.6
177.5°	3219.8	3203.5	3206.0	3222.3	3201.4
180°	3208.3	3208.3	3208.3	3208.3	3208.3

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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	7.44	8.15	8.53	9.24	10.73	3.41	4.13	4.51	5.21	6.70
	3H	9.11	9.74	10.21	10.84	12.35	4.59	5.23	5.70	6.33	7.84
	4H	9.71	10.31	10.82	11.41	12.93	5.04	5.64	6.15	6.74	8.25
	6H	10.13	10.68	11.25	11.78	13.31	5.36	5.91	6.48	7.01	8.54
	8H	10.25	10.78	11.37	11.89	13.41	5.44	5.97	6.57	7.09	8.61
	12H	10.31	10.81	11.43	11.92	13.46	5.48	5.98	6.61	7.09	8.64
4H	2H	7.44	8.05	8.56	9.14	10.66	3.99	4.60	5.11	5.69	7.21
	3H	9.26	9.76	10.39	10.89	12.41	5.33	5.84	6.46	6.96	8.49
	4H	9.95	10.41	11.08	11.52	13.07	5.88	6.34	7.01	7.45	9.00
	6H	10.46	10.85	11.59	11.99	13.53	6.29	6.69	7.43	7.82	9.36
	8H	10.63	11.00	11.77	12.13	13.68	6.42	6.79	7.55	7.91	9.47
	12H	10.72	11.05	11.87	12.19	13.75	6.48	6.81	7.63	7.95	9.51
8H	4H	9.91	10.28	11.04	11.40	12.96	6.15	6.52	7.28	7.65	9.20
	6H	10.47	10.77	11.63	11.94	13.50	6.66	6.97	7.82	8.14	9.69
	8H	10.69	10.95	11.85	12.10	13.67	6.86	7.12	8.02	8.27	9.84
	12H	10.82	11.05	11.98	12.20	13.81	6.97	7.20	8.13	8.35	9.96
12H	4H	9.85	10.19	11.01	11.33	12.89	6.15	6.48	7.30	7.62	9.18
	6H	10.44	10.71	11.61	11.86	13.43	6.71	6.98	7.87	8.13	9.70
	8H	10.66	10.89	11.82	12.04	13.65	6.92	7.15	8.08	8.30	9.91