

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: P918449

Luminaire Tested: DFN2DIP-TR4F0-110D070US930-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918449
REPORT IS A COMBINATION OF REPORTS P901958 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US930-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

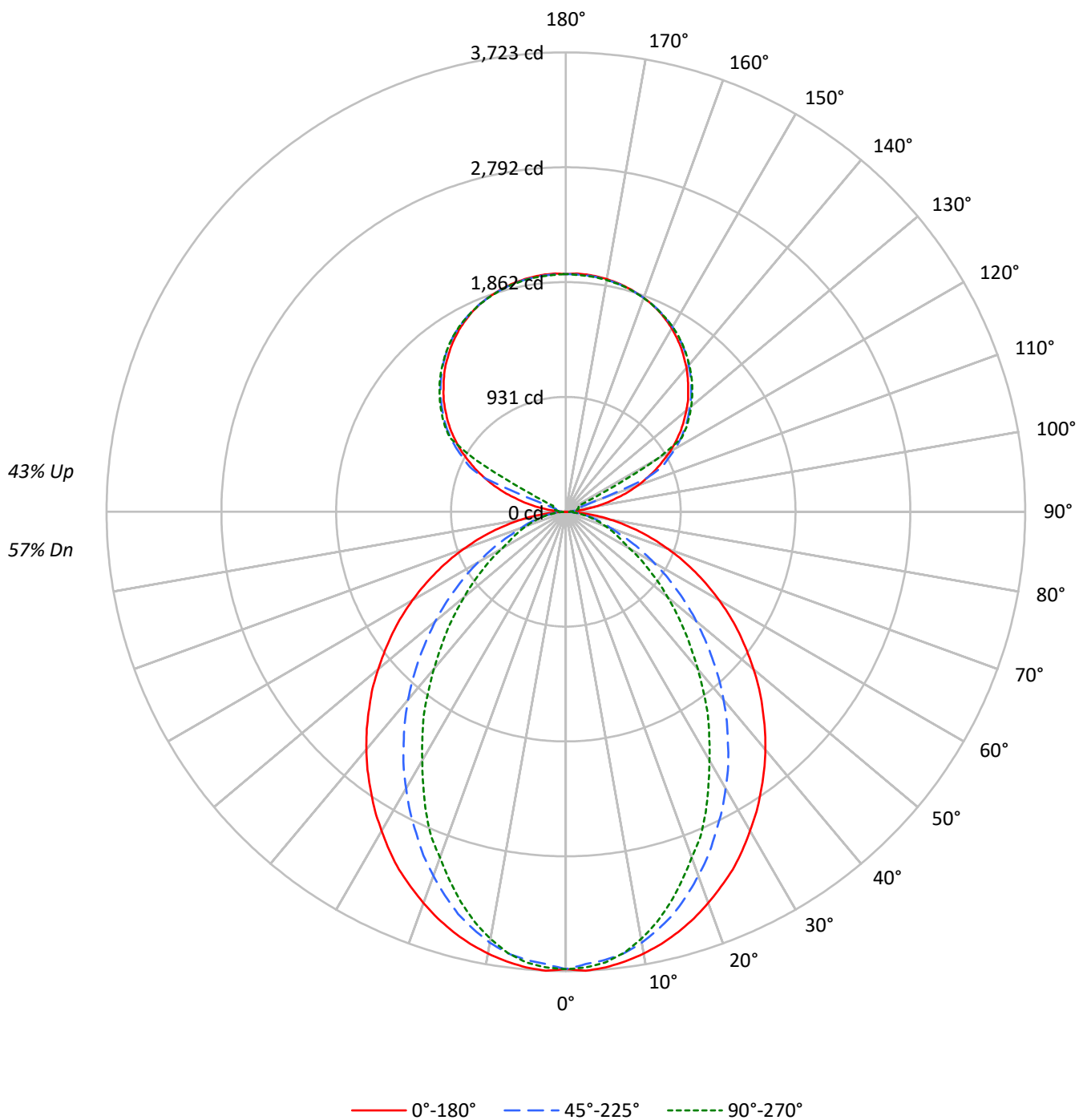
Lumens per Lamp: N/A
Luminaire Lumens: 13273.1 lumens
Efficiency: N/A
Efficacy: 80.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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					0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	109	109	109	109		101	101	101	101		87	87	87		75	75	75		63	63	63
1	100	96	92	89		93	89	86	83		78	75	73		67	65	63		57	55	54
2	92	84	78	73		85	79	74	69		69	65	61		59	56	54		50	48	47
3	84	75	68	62		78	70	64	59		61	56	52		53	49	46		45	43	40
4	77	66	59	53		72	62	56	50		55	49	45		47	43	40		41	38	35
5	71	60	52	46		66	56	49	44		49	44	39		43	39	35		37	34	31
6	66	54	46	40		61	51	43	38		45	39	35		39	35	31		34	30	28
7	61	49	41	35		57	46	39	34		41	35	31		36	31	28		31	27	25
8	57	44	37	32		53	42	35	30		37	32	28		33	28	25		29	25	22
9	53	41	33	28		49	38	32	27		34	29	25		30	26	23		27	23	20
10	49	37	30	26		46	35	29	25		32	26	23		28	24	21		25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2945	2945	2945
5°	2949	2898	2916
10°	2920	2841	2821
15°	2880	2747	2675
20°	2827	2618	2495
25°	2772	2472	2321
30°	2699	2324	2100
35°	2628	2164	1906
40°	2555	1998	1684
45°	2470	1815	1483
50°	2382	1629	1286
55°	2291	1431	1097
60°	2185	1224	903
65°	2064	1014	813
70°	1916	817	735
75°	1731	720	669
80°	1462	604	580
85°	1019	403	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2470 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.6
10°-20°	953.6	7.2
20°-30°	1338.9	10.1
30°-40°	1459.5	11.0
40°-50°	1341.4	10.1
50°-60°	1053.5	7.9
60°-70°	685.7	5.2
70°-80°	353.0	2.7
80°-90°	93.5	0.7
90°-100°	63.5	0.5
100°-110°	236.8	1.8
110°-120°	627.9	4.7
120°-130°	1041.5	7.8
130°-140°	1106.3	8.3
140°-150°	1028.1	7.7
150°-160°	826.6	6.2
160°-170°	532.6	4.0
170°-180°	183.3	1.4
0°-30°	2639.9	19.9
0°-40°	4099.4	30.9
0°-60°	6494.2	48.9
0°-90°	7626.4	57.5
90°-120°	928.2	7.0
90°-150°	4104.1	30.9
90°-180°	5647.0	42.5
0°-180°	13273.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	1	17	28	35	38	12
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

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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	11.56	12.46	12.46	13.37	14.53	7.54	8.43	8.43	9.34	10.51
	3H	13.25	14.05	14.16	14.97	16.16	8.73	9.53	9.64	10.45	11.64
	4H	13.86	14.61	14.78	15.54	16.74	9.19	9.94	10.11	10.87	12.07
	6H	14.28	14.98	15.22	15.91	17.12	9.51	10.21	10.45	11.14	12.35
	8H	14.41	15.07	15.35	16.02	17.23	9.60	10.27	10.55	11.22	12.43
	12H	14.47	15.10	15.42	16.05	17.28	9.65	10.28	10.60	11.22	12.46
4H	2H	11.59	12.35	12.52	13.27	14.47	8.14	8.90	9.07	9.82	11.02
	3H	13.42	14.05	14.37	15.01	16.22	9.50	10.13	10.44	11.08	12.30
	4H	14.12	14.69	15.07	15.64	16.88	10.05	10.62	11.00	11.57	12.81
	6H	14.64	15.13	15.60	16.11	17.34	10.47	10.96	11.44	11.94	13.18
	8H	14.81	15.27	15.78	16.24	17.49	10.60	11.06	11.57	12.03	13.28
	12H	14.91	15.33	15.90	16.31	17.57	10.67	11.09	11.66	12.07	13.33
8H	4H	14.09	14.55	15.06	15.52	16.77	10.33	10.79	11.30	11.76	13.01
	6H	14.66	15.04	15.65	16.05	17.30	10.86	11.24	11.85	12.25	13.50
	8H	14.88	15.21	15.88	16.21	17.48	11.05	11.38	12.05	12.38	13.65
	12H	15.02	15.31	16.02	16.31	17.62	11.17	11.47	12.17	12.46	13.77
12H	4H	14.05	14.46	15.03	15.45	16.70	10.34	10.76	11.33	11.74	13.00
	6H	14.64	14.97	15.64	15.97	17.24	10.90	11.24	11.90	12.24	13.51
	8H	14.86	15.15	15.86	16.15	17.46	11.12	11.41	12.12	12.41	13.72

END OF REPORT