

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: P918277

Luminaire Tested: DFN2DIP-TR4F0-060D090US930-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918277
REPORT IS A COMBINATION OF REPORTS P901984 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D090US930-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

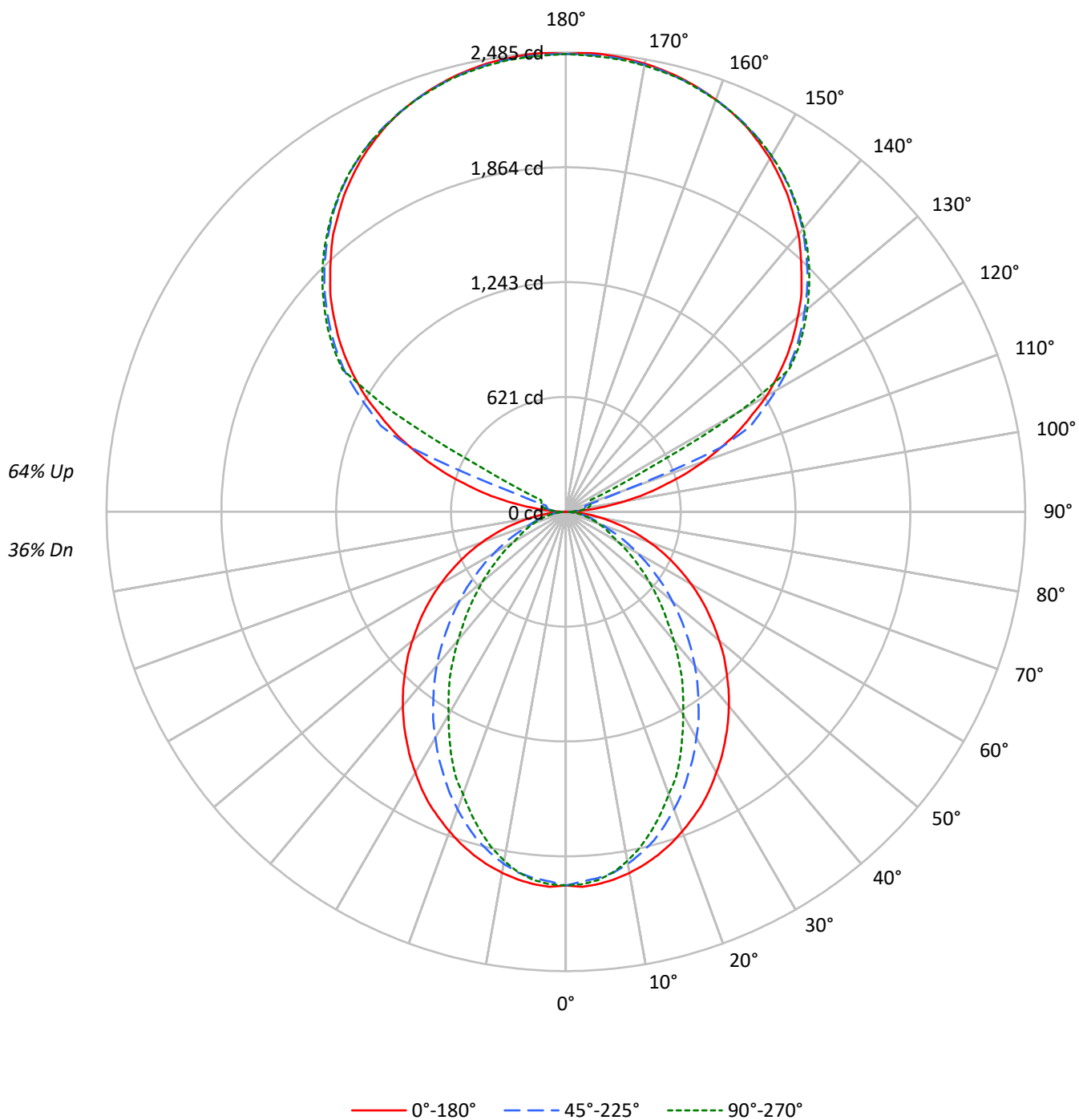
Lumens per Lamp: N/A
Luminaire Lumens: 11422.3 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 121
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1606	1606	1606
5°	1609	1581	1591
10°	1593	1550	1539
15°	1571	1498	1459
20°	1542	1428	1361
25°	1512	1349	1266
30°	1472	1267	1145
35°	1433	1180	1040
40°	1393	1090	919
45°	1347	990	809
50°	1300	889	702
55°	1250	781	598
60°	1192	668	493
65°	1126	553	443
70°	1045	446	401
75°	944	393	365
80°	797	329	316
85°	556	220	237

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1347 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.5	1.7
10°-20°	520.2	4.6
20°-30°	730.3	6.4
30°-40°	796.1	7.0
40°-50°	731.7	6.4
50°-60°	574.6	5.0
60°-70°	374.0	3.3
70°-80°	192.5	1.7
80°-90°	53.5	0.5
90°-100°	81.7	0.7
100°-110°	304.4	2.7
110°-120°	807.3	7.1
120°-130°	1339.0	11.7
130°-140°	1422.3	12.5
140°-150°	1321.9	11.6
150°-160°	1062.8	9.3
160°-170°	684.8	6.0
170°-180°	235.7	2.1
0°-30°	1439.9	12.6
0°-40°	2236.0	19.6
0°-60°	3542.3	31.0
0°-90°	4162.3	36.4
90°-120°	1193.4	10.4
90°-150°	5276.6	46.2
90°-180°	7260.0	63.6
0°-180°	11422.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2022	2022	2022	2022	2022	
5°	2022	2013	1989	2005	2000	192
15°	1923	1903	1841	1806	1788	542
25°	1746	1687	1566	1491	1464	803
35°	1504	1411	1250	1134	1094	941
45°	1230	1107	915	785	741	950
55°	935	792	595	485	450	835
65°	631	483	318	256	251	626
75°	337	208	146	134	132	356
85°	79	40	35	35	35	90
90°	2	22	36	45	48	11
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2021.8	2021.8	2021.8	2021.8	2021.8
2.5°	2030.9	2021.8	2001.6	2020.0	2016.3
5°	2021.8	2012.6	1988.8	2005.3	1999.8
7.5°	2005.3	1994.4	1968.8	1976.0	1966.8
10°	1983.3	1970.5	1934.1	1928.4	1917.5
12.5°	1956.0	1939.4	1889.9	1879.1	1858.9
15°	1923.0	1902.7	1840.6	1805.9	1787.6
17.5°	1884.6	1855.2	1778.3	1738.1	1708.9
20°	1840.6	1803.9	1712.5	1666.9	1626.5
22.5°	1793.1	1750.9	1644.8	1582.7	1555.3
25°	1745.6	1686.9	1566.2	1491.3	1463.7
27.5°	1688.9	1626.5	1493.0	1407.0	1364.9
30°	1628.5	1558.8	1412.4	1319.2	1269.7
32.5°	1569.9	1485.6	1335.8	1225.9	1180.1
35°	1504.1	1410.7	1249.8	1134.4	1094.0
37.5°	1440.0	1339.2	1169.2	1042.8	997.2
40°	1372.2	1262.6	1084.9	955.0	907.5
42.5°	1302.8	1185.7	1000.9	865.4	819.8
45°	1229.6	1106.8	914.9	784.8	740.9
47.5°	1160.1	1030.2	832.6	702.5	662.3
50°	1083.2	953.3	752.0	625.7	587.4
52.5°	1008.0	870.8	675.1	554.4	519.7
55°	934.9	792.2	594.6	484.9	450.1
57.5°	860.0	713.5	523.3	420.9	391.5
60°	783.1	636.7	448.3	355.1	325.7
62.5°	708.2	561.8	384.2	296.4	281.8
65°	631.3	483.0	318.4	256.2	250.6
67.5°	558.1	409.8	256.2	225.0	219.6
70°	481.2	338.5	212.1	194.0	186.5
72.5°	408.1	272.6	177.4	162.9	159.1
75°	336.6	208.5	146.3	133.5	131.8
77.5°	265.4	148.1	115.3	107.9	104.3
80°	199.3	106.2	87.7	80.6	80.6
82.5°	139.0	71.4	60.3	56.7	56.7
85°	78.6	40.2	34.7	34.7	34.7
87.5°	29.4	14.6	14.6	12.8	12.8
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

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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	7.37	8.10	8.44	9.17	10.63	3.35	4.08	4.42	5.15	6.60
	3H	9.04	9.70	10.12	10.77	12.25	4.53	5.18	5.61	6.26	7.73
	4H	9.65	10.27	10.74	11.34	12.82	4.98	5.59	6.07	6.67	8.15
	6H	10.06	10.63	11.16	11.71	13.21	5.29	5.86	6.39	6.94	8.44
	8H	10.19	10.73	11.29	11.83	13.31	5.38	5.92	6.48	7.02	8.50
	12H	10.24	10.76	11.35	11.85	13.36	5.42	5.94	6.53	7.03	8.53
4H	2H	7.38	8.00	8.48	9.08	10.56	3.93	4.55	5.03	5.63	7.11
	3H	9.20	9.71	10.30	10.82	12.31	5.27	5.79	6.38	6.89	8.38
	4H	9.89	10.36	11.00	11.46	12.97	5.82	6.29	6.93	7.39	8.90
	6H	10.40	10.80	11.51	11.92	13.43	6.23	6.64	7.35	7.76	9.26
	8H	10.57	10.95	11.69	12.06	13.58	6.36	6.74	7.48	7.85	9.37
	12H	10.66	11.00	11.79	12.13	13.65	6.42	6.76	7.55	7.89	9.41
8H	4H	9.85	10.23	10.96	11.34	12.86	6.09	6.47	7.21	7.58	9.10
	6H	10.41	10.72	11.55	11.87	13.39	6.61	6.92	7.74	8.07	9.59
	8H	10.63	10.90	11.77	12.03	13.57	6.80	7.07	7.94	8.20	9.74
	12H	10.76	11.00	11.91	12.13	13.70	6.91	7.15	8.06	8.28	9.86
12H	4H	9.80	10.14	10.93	11.26	12.79	6.09	6.43	7.22	7.55	9.08
	6H	10.39	10.66	11.53	11.79	13.33	6.65	6.93	7.80	8.06	9.60
	8H	10.60	10.84	11.75	11.97	13.55	6.86	7.10	8.01	8.23	9.81