

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: P919715

Luminaire Tested: DFN2DIP-PN4F0-090D090US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919715
REPORT IS A COMBINATION OF REPORTS P901230 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D090US935-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

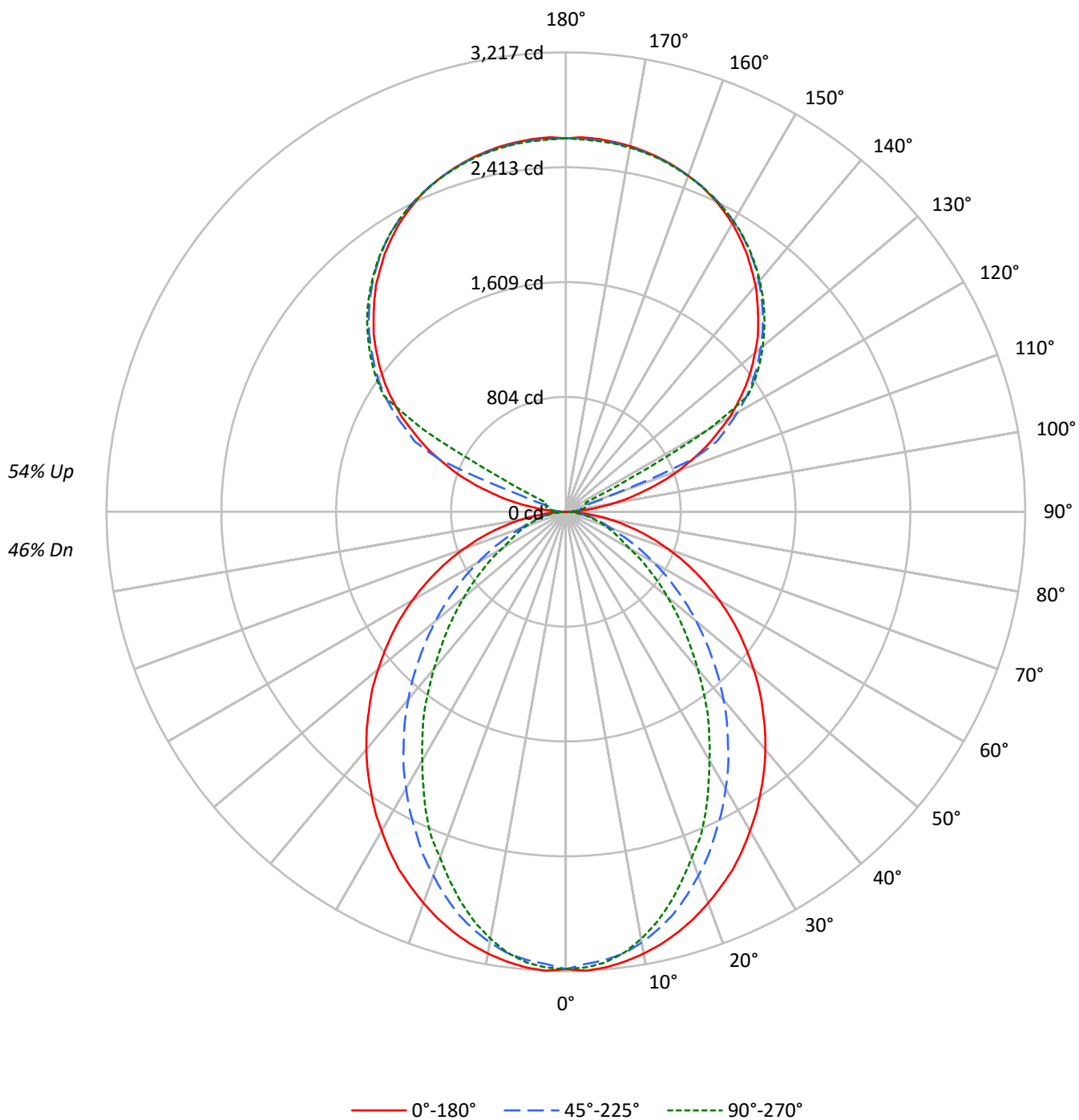
Lumens per Lamp: N/A
Luminaire Lumens: 14258.1 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 155
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	106	106	106	106		98	98	98	98		81	81	81		66	66	66		53	53	53
1	97	93	90	86		89	86	83	80		72	70	68		59	58	56		47	46	45
2	89	82	76	71		82	76	70	66		63	60	57		52	50	48		42	40	39
3	81	72	65	60		75	67	61	56		56	52	48		47	43	41		38	35	34
4	75	64	57	51		68	60	53	48		50	45	41		42	38	35		34	31	29
5	69	58	50	44		63	53	46	41		45	40	36		38	34	31		31	28	26
6	63	52	44	38		58	48	41	36		41	36	32		34	30	27		28	25	23
7	59	47	39	34		54	44	37	32		37	32	28		31	27	24		26	23	21
8	55	43	35	30		50	40	33	28		34	29	25		29	25	22		24	21	19
9	51	39	32	27		47	36	30	25		31	26	22		27	23	20		22	19	17
10	48	36	29	24		44	33	27	23		29	24	20		25	21	18		20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2338	2338	2338
5°	2342	2301	2316
10°	2318	2256	2241
15°	2286	2182	2125
20°	2244	2079	1982
25°	2201	1964	1844
30°	2143	1847	1670
35°	2086	1720	1516
40°	2028	1589	1340
45°	1961	1443	1180
50°	1891	1296	1024
55°	1819	1139	874
60°	1735	975	720
65°	1638	807	649
70°	1521	651	588
75°	1374	575	536
80°	1160	483	466
85°	808	324	353

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1961 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	2.1
10°-20°	824.0	5.8
20°-30°	1156.9	8.1
30°-40°	1261.0	8.8
40°-50°	1159.0	8.1
50°-60°	910.3	6.4
60°-70°	592.5	4.2
70°-80°	305.0	2.1
80°-90°	82.5	0.6
90°-100°	86.2	0.6
100°-110°	321.5	2.3
110°-120°	852.6	6.0
120°-130°	1414.1	9.9
130°-140°	1502.1	10.5
140°-150°	1396.0	9.8
150°-160°	1122.4	7.9
160°-170°	723.2	5.1
170°-180°	248.9	1.7
0°-30°	2281.0	16.0
0°-40°	3542.0	24.8
0°-60°	5611.3	39.4
0°-90°	6591.2	46.2
90°-120°	1260.3	8.8
90°-150°	5572.4	39.1
90°-180°	7667.0	53.8
0°-180°	14258.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	2	23	38	47	51	13
95°	123	60	74	83	81	146
105°	575	632	116	136	144	615
115°	1088	1120	1168	291	155	1071
125°	1538	1563	1599	1612	1618	1372
135°	1904	1934	1951	1970	1966	1471
145°	2208	2206	2239	2252	2242	1381
155°	2432	2415	2437	2449	2434	1121
165°	2562	2551	2557	2570	2557	724
175°	2621	2608	2611	2625	2606	249
180°	2615	2615	2615	2615	2615	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	1.8	22.7	37.7	47.4	51.0
92.5°	47.4	39.8	45.4	49.2	51.0
95°	123.0	60.4	73.7	83.3	81.4
97.5°	221.4	66.3	96.4	102.2	104.0
100°	335.0	75.8	107.9	123.0	126.7
102.5°	459.8	456.2	111.7	132.3	138.2
105°	575.2	632.1	115.5	136.2	143.8
107.5°	709.6	756.8	119.3	140.0	147.7
110°	838.4	878.0	331.2	142.0	149.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	959.5	993.4	961.3	145.6	151.4
115°	1088.0	1120.2	1167.6	291.4	155.2
117.5°	1199.7	1237.5	1269.8	999.1	503.3
120°	1324.6	1353.0	1387.2	1409.8	1154.3
122.5°	1430.5	1460.9	1498.8	1510.0	1512.1
125°	1538.3	1563.1	1599.0	1612.3	1617.9
127.5°	1636.8	1663.3	1691.9	1710.7	1712.5
130°	1729.6	1760.0	1780.6	1801.5	1799.7
132.5°	1824.2	1848.9	1869.6	1886.7	1884.9
135°	1903.8	1934.1	1950.9	1970.0	1966.3
137.5°	1986.9	2009.6	2028.7	2047.5	2041.9
140°	2068.2	2083.5	2104.2	2121.2	2111.9
142.5°	2136.6	2149.8	2174.3	2189.3	2180.0
145°	2208.5	2206.4	2238.6	2251.9	2242.4
147.5°	2270.7	2265.1	2297.2	2306.7	2299.2
150°	2331.4	2318.2	2348.5	2359.7	2350.3
152.5°	2382.4	2367.3	2395.6	2407.1	2393.8
155°	2431.6	2414.8	2437.4	2448.7	2433.6
157.5°	2471.4	2456.3	2473.4	2486.6	2471.4
160°	2505.5	2494.1	2505.5	2516.8	2503.5
162.5°	2535.6	2524.4	2533.8	2547.1	2530.0
165°	2562.2	2550.9	2556.6	2569.8	2556.6
167.5°	2583.1	2571.6	2577.4	2590.7	2573.6
170°	2600.1	2588.7	2592.5	2605.7	2588.7
172.5°	2611.4	2600.1	2603.9	2617.2	2600.1
175°	2620.8	2607.5	2611.4	2624.6	2605.7
177.5°	2624.6	2611.4	2613.4	2626.6	2609.6
180°	2615.2	2615.2	2615.2	2615.2	2615.2

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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	9.74	10.54	10.74	11.54	12.87	5.71	6.51	6.70	7.51	8.84
	3H	11.42	12.14	12.43	13.15	14.49	6.89	7.61	7.90	8.62	9.97
	4H	12.03	12.71	13.05	13.72	15.08	7.34	8.02	8.36	9.03	10.39
	6H	12.45	13.07	13.48	14.09	15.46	7.66	8.29	8.69	9.31	10.67
	8H	12.58	13.17	13.61	14.21	15.57	7.75	8.35	8.79	9.38	10.74
	12H	12.64	13.20	13.68	14.23	15.62	7.80	8.36	8.84	9.39	10.78
4H	2H	9.76	10.43	10.78	11.45	12.80	6.30	6.98	7.33	7.99	9.35
	3H	11.59	12.15	12.62	13.19	14.56	7.65	8.21	8.68	9.25	10.62
	4H	12.28	12.79	13.32	13.83	15.22	8.20	8.71	9.24	9.75	11.14
	6H	12.80	13.24	13.85	14.30	15.68	8.61	9.06	9.66	10.11	11.50
	8H	12.97	13.38	14.02	14.43	15.84	8.74	9.16	9.79	10.21	11.61
	12H	13.07	13.44	14.14	14.50	15.91	8.81	9.18	9.88	10.25	11.65
8H	4H	12.24	12.66	13.30	13.71	15.11	8.48	8.89	9.53	9.94	11.34
	6H	12.81	13.15	13.89	14.25	15.65	8.99	9.33	10.07	10.43	11.83
	8H	13.03	13.33	14.11	14.41	15.83	9.19	9.48	10.27	10.56	11.98
	12H	13.17	13.43	14.25	14.51	15.97	9.30	9.57	10.39	10.64	12.10
12H	4H	12.20	12.57	13.26	13.63	15.04	8.48	8.85	9.55	9.92	11.32
	6H	12.79	13.09	13.87	14.16	15.58	9.04	9.34	10.13	10.42	11.84
	8H	13.01	13.27	14.09	14.34	15.80	9.25	9.52	10.34	10.59	12.05

END OF REPORT