

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: P919745

Luminaire Tested: DFN2DIP-PN4F0-100D080US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919745
REPORT IS A COMBINATION OF REPORTS P901213 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D080US935-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

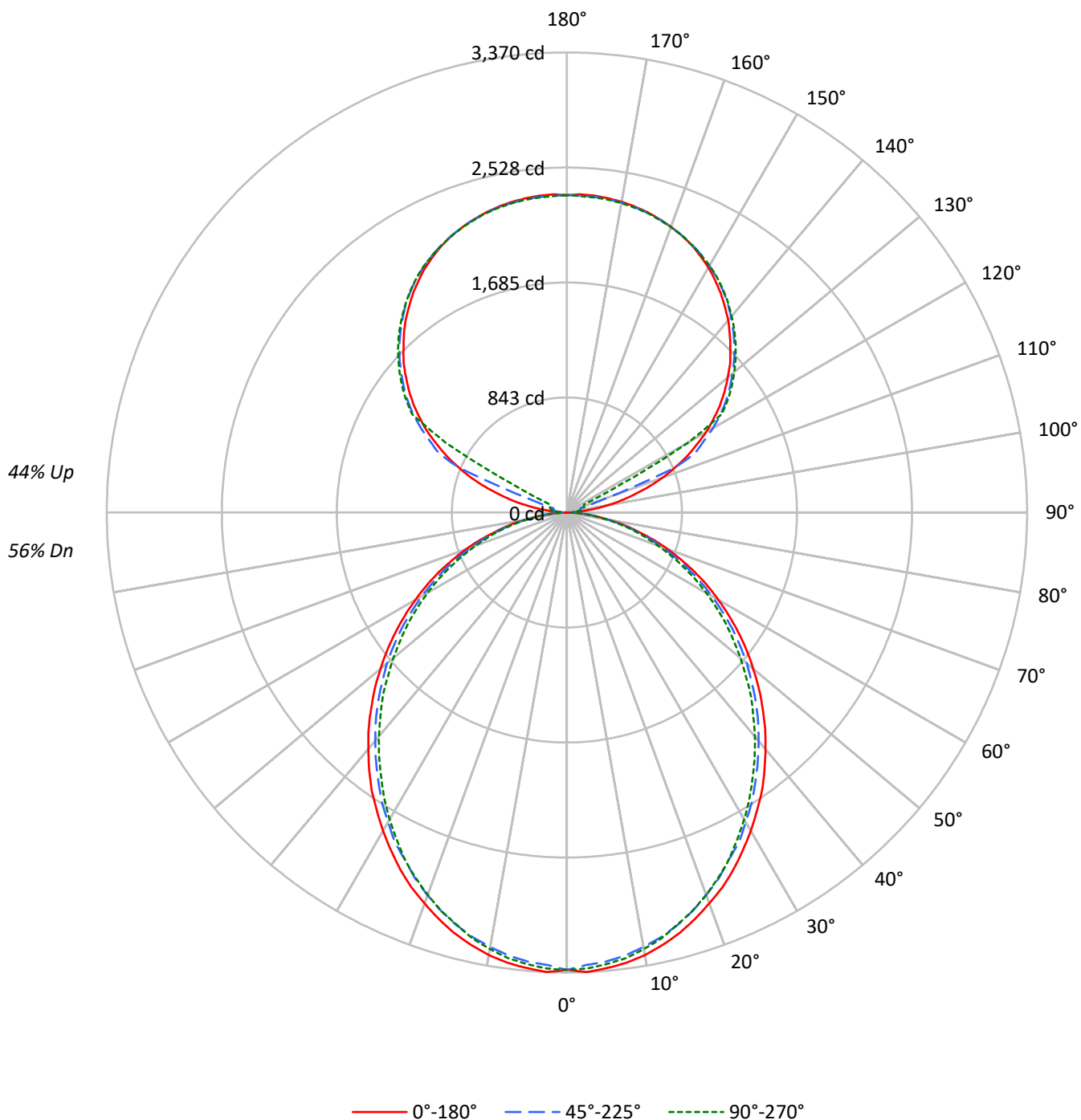
Lumens per Lamp: N/A
Luminaire Lumens: 15343.0 lumens
Efficiency: N/A
Efficacy: 96.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 158.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919745

CATALOG NUMBER: DFN2DIP-PN4F0-100D080US935-FLLONL

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	108	108	108	108		101	101	101	101		86	86	86		73	73	73		61	61	61
1	99	95	91	87		92	88	85	82		76	73	71		65	63	61		54	53	52
2	90	83	76	71		84	77	72	67		66	62	59		57	54	51		48	46	44
3	82	73	65	59		76	68	61	56		59	54	50		50	46	43		42	39	37
4	75	64	56	50		70	60	53	48		52	47	42		45	40	37		38	35	32
5	69	57	49	43		64	54	46	41		47	41	36		40	36	32		34	31	28
6	64	52	43	37		59	48	41	36		42	36	32		36	32	28		31	27	25
7	59	47	39	33		55	44	36	31		38	32	28		33	28	25		28	25	22
8	55	42	34	29		51	40	33	28		35	29	25		30	26	22		26	22	20
9	51	39	31	26		47	36	29	25		32	26	22		28	23	20		24	20	18
10	48	35	28	23		44	33	27	22		29	24	20		26	21	18		22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2446	2446	2446
5°	2449	2412	2428
10°	2430	2380	2396
15°	2394	2341	2345
20°	2345	2287	2293
25°	2298	2222	2232
30°	2237	2162	2155
35°	2180	2091	2074
40°	2110	2019	1997
45°	2040	1947	1918
50°	1964	1871	1826
55°	1883	1784	1742
60°	1793	1680	1645
65°	1694	1573	1532
70°	1568	1442	1410
75°	1394	1286	1297
80°	1184	1086	1082
85°	856	741	724

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2040 cd/sqm

TEST NUMBER: P919745

CATALOG NUMBER: DFN2DIP-PN4F0-100D080US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.3	2.1
10°-20°	887.2	5.8
20°-30°	1303.8	8.5
30°-40°	1514.3	9.9
40°-50°	1512.4	9.9
50°-60°	1318.8	8.6
60°-70°	974.9	6.4
70°-80°	551.6	3.6
80°-90°	149.7	1.0
90°-100°	76.7	0.5
100°-110°	285.7	1.9
110°-120°	757.9	4.9
120°-130°	1256.9	8.2
130°-140°	1335.2	8.7
140°-150°	1240.9	8.1
150°-160°	997.6	6.5
160°-170°	642.8	4.2
170°-180°	221.3	1.4
0°-30°	2506.3	16.3
0°-40°	4020.6	26.2
0°-60°	6851.8	44.7
0°-90°	8528.0	55.6
90°-120°	1120.2	7.3
90°-150°	4953.3	32.3
90°-180°	6815.0	44.4
0°-180°	15343.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3350	3350	3350	3350	3350	
5°	3350	3338	3302	3328	3322	318
15°	3189	3170	3128	3141	3125	898
25°	2886	2861	2806	2812	2806	1328
35°	2490	2458	2406	2387	2371	1555
45°	2026	2004	1955	1920	1907	1564
55°	1534	1514	1476	1437	1421	1371
65°	1034	1015	983	954	938	1023
75°	541	535	518	499	506	578
85°	132	129	126	116	113	147
90°	2	20	34	42	45	14
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2161	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	

TEST NUMBER: P919745

CATALOG NUMBER: DFN2DIP-PN4F0-100D080US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3350.2	3350.2	3350.2	3350.2	3350.2
2.5°	3369.7	3353.6	3318.0	3350.2	3344.0
5°	3350.2	3337.6	3302.0	3327.7	3321.5
7.5°	3327.7	3308.5	3272.9	3298.9	3292.5
10°	3292.5	3269.9	3231.2	3256.9	3247.3
12.5°	3243.9	3224.8	3186.1	3202.2	3195.7
15°	3189.2	3170.1	3128.0	3141.0	3125.0
17.5°	3121.5	3102.4	3060.3	3076.4	3060.3
20°	3047.3	3028.2	2983.1	2992.7	2980.0
22.5°	2973.5	2944.5	2902.4	2902.4	2896.0
25°	2886.4	2860.8	2806.1	2812.2	2806.1
27.5°	2789.6	2767.1	2725.4	2715.8	2699.7
30°	2693.3	2667.3	2619.1	2609.5	2596.5
32.5°	2590.1	2570.9	2519.3	2499.8	2486.8
35°	2490.3	2458.1	2406.5	2387.0	2370.9
37.5°	2377.5	2348.4	2296.8	2274.2	2258.1
40°	2261.6	2235.6	2184.0	2155.3	2142.3
42.5°	2148.8	2122.8	2071.6	2039.1	2020.0
45°	2026.4	2003.9	1955.3	1920.1	1907.2
47.5°	1907.2	1884.6	1833.0	1797.4	1778.3
50°	1781.4	1765.3	1720.2	1675.1	1659.1
52.5°	1659.1	1636.5	1594.7	1559.3	1536.7
55°	1533.6	1514.2	1475.5	1436.8	1420.8
57.5°	1407.8	1391.7	1349.7	1311.1	1298.1
60°	1282.0	1269.4	1224.3	1188.7	1179.1
62.5°	1159.7	1137.1	1105.0	1072.9	1059.9
65°	1034.2	1014.8	982.7	953.6	937.5
67.5°	905.4	889.0	860.3	837.8	824.7
70°	786.1	773.1	744.1	721.5	708.9
72.5°	663.7	650.7	634.7	612.2	602.5
75°	541.1	534.9	518.5	499.4	505.8
77.5°	431.7	418.7	412.2	402.6	393.0
80°	322.3	318.9	312.4	302.8	296.4
82.5°	219.1	219.1	216.0	203.0	203.0
85°	131.9	128.9	125.8	115.9	112.8
87.5°	58.1	51.6	45.1	35.6	32.1
90°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9

TEST NUMBER: P919745

CATALOG NUMBER: DFN2DIP-PN4F0-100D080US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.3	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.1
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.6	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.4	2146.5	2166.6	2176.6	2163.3
157.5°	2196.7	2183.4	2198.6	2210.4	2196.7
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6

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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	10.89	11.80	11.79	12.73	13.92	10.45	11.36	11.35	12.29	13.48
	3H	12.55	13.37	13.47	14.31	15.52	12.07	12.89	12.99	13.83	15.04
	4H	13.15	13.92	14.08	14.86	16.08	12.66	13.43	13.59	14.38	15.60
	6H	13.55	14.27	14.50	15.21	16.45	13.06	13.77	14.00	14.72	15.96
	8H	13.66	14.34	14.61	15.30	16.54	13.17	13.85	14.12	14.81	16.04
	12H	13.71	14.36	14.67	15.32	16.57	13.21	13.86	14.17	14.82	16.07
4H	2H	11.35	12.13	12.29	13.07	14.29	11.00	11.78	11.94	12.72	13.94
	3H	13.23	13.88	14.18	14.85	16.08	12.83	13.47	13.78	14.44	15.68
	4H	13.95	14.54	14.91	15.50	16.77	13.53	14.12	14.49	15.09	16.35
	6H	14.47	14.98	15.44	15.97	17.23	14.04	14.55	15.02	15.54	16.80
	8H	14.62	15.10	15.59	16.08	17.35	14.19	14.67	15.17	15.65	16.93
	12H	14.70	15.13	15.69	16.13	17.41	14.26	14.69	15.25	15.69	16.97
8H	4H	14.15	14.62	15.12	15.61	16.88	13.78	14.25	14.75	15.24	16.51
	6H	14.78	15.18	15.78	16.20	17.48	14.41	14.80	15.41	15.83	17.10
	8H	15.01	15.36	16.02	16.37	17.66	14.62	14.97	15.63	15.98	17.28
	12H	15.14	15.45	16.16	16.46	17.79	14.74	15.05	15.75	16.05	17.39
12H	4H	14.14	14.57	15.13	15.57	16.85	13.77	14.20	14.77	15.20	16.48
	6H	14.82	15.16	15.82	16.18	17.47	14.45	14.80	15.46	15.81	17.10
	8H	15.06	15.37	16.07	16.37	17.71	14.69	15.00	15.70	16.00	17.34