

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: P919617

Luminaire Tested: DFN2DIP-PN4F0-060D120US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919617
REPORT IS A COMBINATION OF REPORTS P901277 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D120US935-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

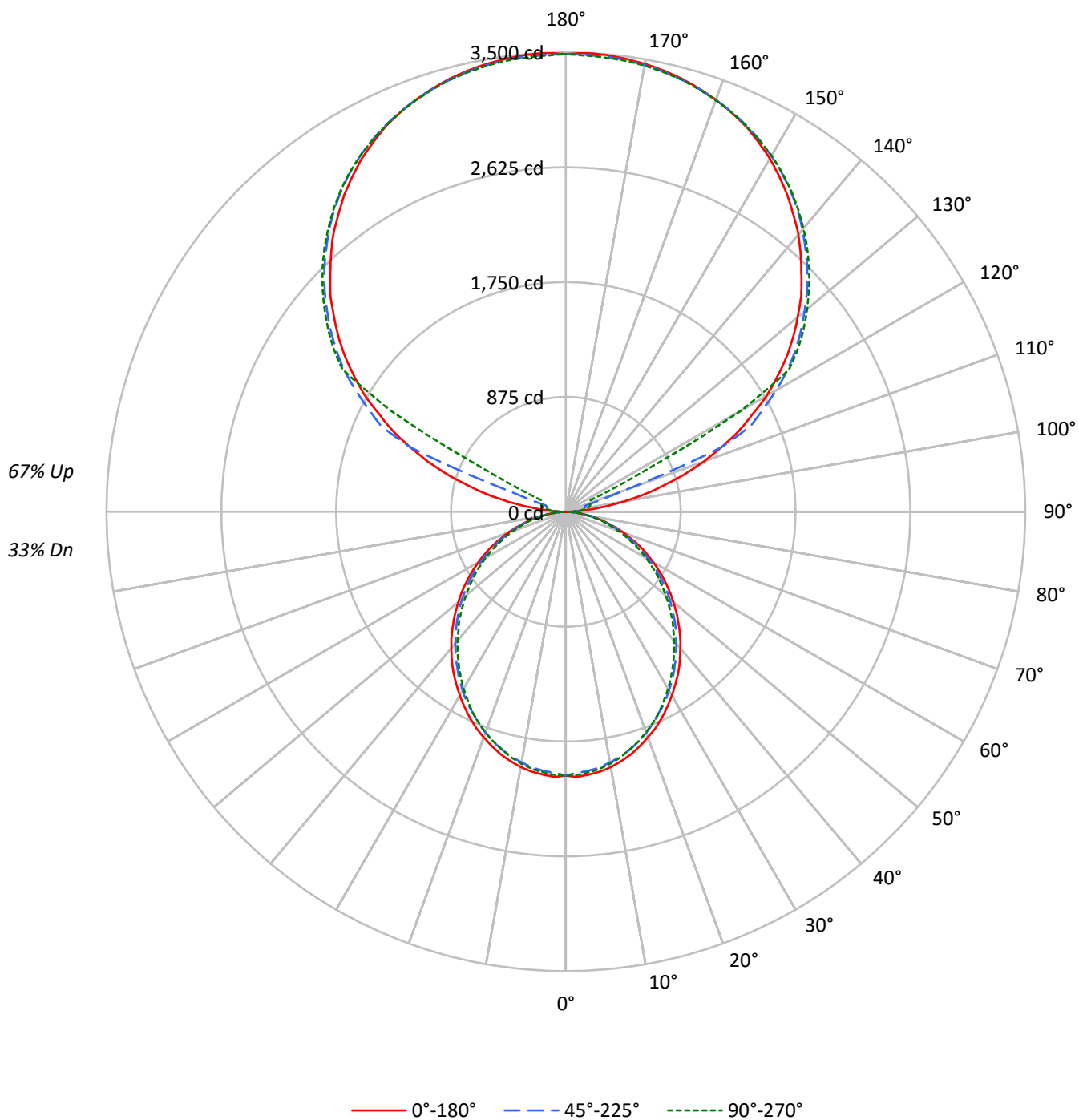
Lumens per Lamp: N/A
Luminaire Lumens: 15343.0 lumens
Efficiency: N/A
Efficacy: 97.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 158.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919617

CATALOG NUMBER: DFN2DIP-PN4F0-060D120US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P919617

CATALOG NUMBER: DFN2DIP-PN4F0-060D120US935-FLLONL

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	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1467	1467	1467
5°	1470	1447	1457
10°	1458	1428	1437
15°	1436	1404	1407
20°	1407	1372	1376
25°	1379	1333	1339
30°	1342	1297	1293
35°	1308	1254	1244
40°	1266	1211	1198
45°	1224	1168	1151
50°	1178	1123	1096
55°	1130	1070	1045
60°	1076	1008	987
65°	1016	944	919
70°	941	865	846
75°	836	771	778
80°	711	652	649
85°	513	444	434

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1859 cd/sqm

TEST NUMBER: P919617

CATALOG NUMBER: DFN2DIP-PN4F0-060D120US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	1.2
10°-20°	532.3	3.5
20°-30°	782.3	5.1
30°-40°	908.6	5.9
40°-50°	907.5	5.9
50°-60°	791.3	5.2
60°-70°	584.9	3.8
70°-80°	330.9	2.2
80°-90°	93.5	0.6
90°-100°	115.0	0.7
100°-110°	428.6	2.8
110°-120°	1136.8	7.4
120°-130°	1885.4	12.3
130°-140°	2002.8	13.1
140°-150°	1861.3	12.1
150°-160°	1496.5	9.8
160°-170°	964.3	6.3
170°-180°	331.9	2.2
0°-30°	1503.8	9.8
0°-40°	2412.4	15.7
0°-60°	4111.1	26.8
0°-90°	5120.5	33.4
90°-120°	1680.4	11.0
90°-150°	7429.9	48.4
90°-180°	10223.0	66.6
0°-180°	15343.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	2	30	50	63	68	14
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

TEST NUMBER: P919617

CATALOG NUMBER: DFN2DIP-PN4F0-060D120US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2



TEST NUMBER: P919617

CATALOG NUMBER: DFN2DIP-PN4F0-060D120US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.6	1650.0	1693.2	1332.0	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.2	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2941.9	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.8
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.6	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.5	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

TEST NUMBER: P919617

CATALOG NUMBER: DFN2DIP-PN4F0-060D120US935-FLLONL

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	6.84	7.57	7.93	8.65	10.15	6.40	7.13	7.49	8.21	9.71
	3H	8.49	9.14	9.59	10.24	11.75	8.01	8.66	9.10	9.76	11.26
	4H	9.07	9.69	10.18	10.79	12.31	8.59	9.21	9.69	10.30	11.82
	6H	9.47	10.04	10.59	11.14	12.67	8.98	9.55	10.09	10.65	12.17
	8H	9.57	10.12	10.69	11.23	12.75	9.08	9.62	10.20	10.74	12.26
	12H	9.62	10.13	10.74	11.24	12.78	9.12	9.63	10.24	10.74	12.28
4H	2H	7.28	7.90	8.40	9.00	10.51	6.93	7.55	8.05	8.65	10.16
	3H	9.14	9.66	10.26	10.78	12.31	8.74	9.26	9.86	10.38	11.90
	4H	9.85	10.33	10.98	11.44	12.99	9.43	9.91	10.56	11.02	12.57
	6H	10.36	10.77	11.49	11.91	13.44	9.94	10.35	11.07	11.48	13.02
	8H	10.51	10.89	11.64	12.02	13.57	10.08	10.46	11.21	11.59	13.14
	12H	10.58	10.92	11.73	12.06	13.62	10.14	10.48	11.29	11.62	13.18
8H	4H	10.04	10.42	11.17	11.55	13.10	9.67	10.05	10.80	11.17	12.73
	6H	10.67	10.98	11.82	12.15	13.70	10.29	10.60	11.44	11.77	13.33
	8H	10.89	11.16	12.05	12.31	13.88	10.50	10.78	11.66	11.93	13.50
	12H	11.02	11.26	12.18	12.40	14.01	10.61	10.86	11.78	12.00	13.61
12H	4H	10.02	10.36	11.17	11.50	13.06	9.65	10.00	10.80	11.14	12.70
	6H	10.70	10.97	11.85	12.12	13.69	10.33	10.61	11.49	11.75	13.33
	8H	10.93	11.18	12.10	12.32	13.93	10.56	10.80	11.72	11.95	13.56

END OF REPORT