

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: P918623

Luminaire Tested: DFN2DIP-4P3F0-060D020US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918623
REPORT IS A COMBINATION OF REPORTS P900557 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D020US935-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

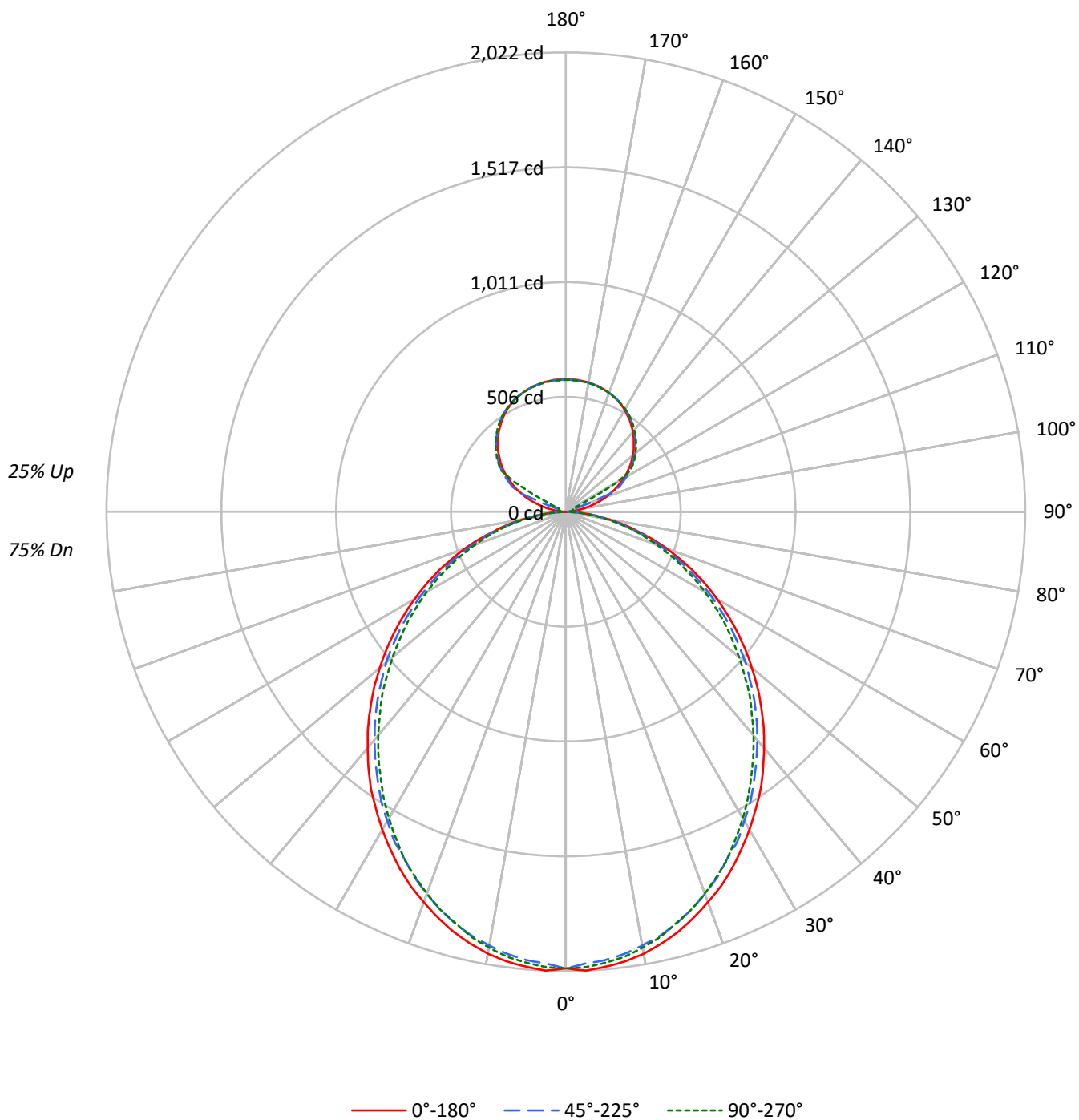
Lumens per Lamp: N/A
Luminaire Lumens: 6819.1 lumens
Efficiency: N/A
Efficacy: 88.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.4
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

TEST NUMBER: P918623

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918623

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US935-FLONL

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	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41
5	72	60	52	46	69	58	50	44	53	46	41	48	43	39	44	40	36
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25
9	54	41	33	28	51	39	32	27	37	30	26	34	28	24	31	26	23
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2291	2291	2291
5°	2293	2257	2273
10°	2273	2225	2242
15°	2238	2187	2193
20°	2191	2135	2143
25°	2145	2072	2085
30°	2087	2014	2012
35°	2032	1946	1935
40°	1965	1877	1861
45°	1898	1808	1786
50°	1824	1735	1699
55°	1747	1650	1619
60°	1660	1551	1526
65°	1564	1447	1418
70°	1443	1320	1301
75°	1274	1169	1192
80°	1071	975	985
85°	754	646	645

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1898 cd/sqm

TEST NUMBER: P918623

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	2.8
10°-20°	532.3	7.8
20°-30°	782.3	11.5
30°-40°	908.6	13.3
40°-50°	907.5	13.3
50°-60°	791.3	11.6
60°-70°	584.9	8.6
70°-80°	330.9	4.9
80°-90°	88.4	1.3
90°-100°	19.2	0.3
100°-110°	71.4	1.0
110°-120°	189.5	2.8
120°-130°	314.2	4.6
130°-140°	333.8	4.9
140°-150°	310.2	4.5
150°-160°	249.4	3.7
160°-170°	160.7	2.4
170°-180°	55.3	0.8
0°-30°	1503.8	22.1
0°-40°	2412.4	35.4
0°-60°	4111.1	60.3
0°-90°	5115.4	75.0
90°-120°	280.0	4.1
90°-150°	1238.3	18.2
90°-180°	1704.0	25.0
0°-180°	6819.1	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°	0	5	8	10	11	6
95°	27	13	16	18	18	32
105°	128	140	26	30	32	137
115°	242	249	260	65	34	238
125°	342	347	355	358	360	305
135°	423	430	434	438	437	327
145°	491	490	498	500	498	307
155°	540	537	542	544	541	249
165°	569	567	568	571	568	161
175°	582	580	580	583	579	55
180°	581	581	581	581	581	

TEST NUMBER: P918623

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US935-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°	0.4	5.1	8.4	10.5	11.4
92.5°	10.5	8.9	10.1	10.9	11.4
95°	27.3	13.4	16.4	18.5	18.1
97.5°	49.2	14.7	21.4	22.7	23.2
100°	74.5	16.8	23.9	27.3	28.2
102.5°	102.2	101.3	24.8	29.4	30.7
105°	127.9	140.4	25.7	30.2	31.9
107.5°	157.7	168.2	26.5	31.1	32.8
110°	186.3	195.1	73.6	31.6	33.2

TEST NUMBER: P918623

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	213.2	220.8	213.6	32.4	33.7
115°	241.8	248.9	259.5	64.7	34.5
117.5°	266.6	275.0	282.1	222.1	111.8
120°	294.4	300.7	308.2	313.3	256.5
122.5°	317.9	324.6	333.0	335.5	336.0
125°	341.9	347.3	355.3	358.3	359.6
127.5°	363.8	369.6	376.0	380.1	380.6
130°	384.3	391.1	395.7	400.4	399.9
132.5°	405.4	410.9	415.4	419.2	418.9
135°	423.1	429.8	433.5	437.8	437.0
137.5°	441.5	446.6	450.8	455.0	453.7
140°	459.6	463.0	467.6	471.4	469.3
142.5°	474.8	477.8	483.2	486.5	484.4
145°	490.8	490.3	497.5	500.4	498.3
147.5°	504.6	503.3	510.5	512.6	510.9
150°	518.1	515.1	521.9	524.3	522.3
152.5°	529.4	526.1	532.4	534.9	531.9
155°	540.4	536.6	541.7	544.2	540.8
157.5°	549.2	545.9	549.7	552.6	549.2
160°	556.8	554.2	556.8	559.3	556.4
162.5°	563.4	560.9	563.1	566.0	562.2
165°	569.4	566.9	568.1	571.1	568.1
167.5°	574.0	571.4	572.7	575.7	571.9
170°	577.8	575.2	576.1	579.0	575.2
172.5°	580.3	577.8	578.7	581.6	577.8
175°	582.4	579.5	580.3	583.2	579.0
177.5°	583.2	580.3	580.7	583.7	579.9
180°	581.2	581.2	581.2	581.2	581.2

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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	12.17	13.31	12.87	14.04	14.90	11.72	12.86	12.43	13.59	14.45
	3H	13.84	14.87	14.56	15.61	16.50	13.35	14.38	14.07	15.12	16.01
	4H	14.44	15.41	15.18	16.16	17.06	13.95	14.91	14.69	15.66	16.57
	6H	14.85	15.74	15.60	16.50	17.42	14.35	15.24	15.10	16.00	16.92
	8H	14.96	15.81	15.72	16.59	17.51	14.46	15.31	15.22	16.09	17.01
	12H	15.02	15.83	15.79	16.60	17.55	14.51	15.32	15.28	16.09	17.04
4H	2H	12.66	13.62	13.40	14.37	15.28	12.30	13.27	13.04	14.02	14.92
	3H	14.54	15.35	15.30	16.13	17.06	14.13	14.94	14.89	15.73	16.65
	4H	15.26	16.00	16.03	16.78	17.74	14.84	15.57	15.61	16.36	17.31
	6H	15.79	16.43	16.58	17.24	18.20	15.36	16.00	16.15	16.80	17.76
	8H	15.94	16.54	16.74	17.35	18.32	15.51	16.10	16.30	16.91	17.88
	12H	16.03	16.56	16.84	17.39	18.37	15.58	16.12	16.39	16.94	17.92
8H	4H	15.48	16.07	16.27	16.88	17.85	15.10	15.70	15.89	16.50	17.47
	6H	16.11	16.61	16.94	17.46	18.43	15.73	16.23	16.55	17.07	18.05
	8H	16.34	16.77	17.17	17.62	18.61	15.94	16.38	16.78	17.23	18.22
	12H	16.48	16.86	17.31	17.70	18.75	16.07	16.45	16.90	17.29	18.34
12H	4H	15.48	16.01	16.29	16.84	17.82	15.11	15.64	15.92	16.47	17.45
	6H	16.15	16.59	16.98	17.43	18.42	15.77	16.21	16.61	17.06	18.05
	8H	16.40	16.78	17.23	17.62	18.67	16.02	16.40	16.85	17.24	18.29