

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: P913227

Luminaire Tested: DFN2DIP-4P4F0-040D070US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913227
REPORT IS A COMBINATION OF REPORTS P900649 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D070US927-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

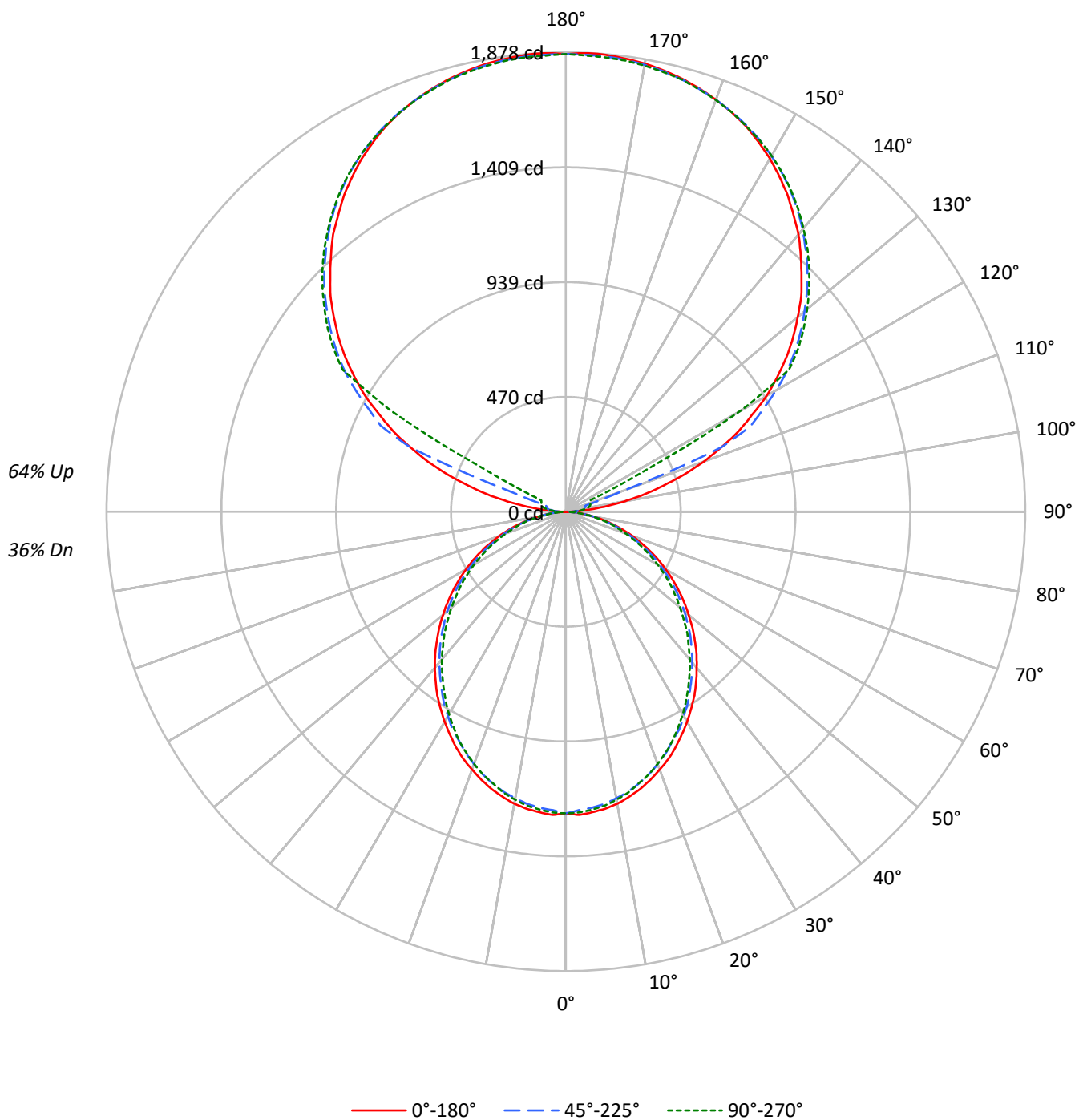
Lumens per Lamp: N/A
Luminaire Lumens: 8626.8 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P913227

CATALOG NUMBER: DFN2DIP-4P4F0-040D070US927-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P913227

CATALOG NUMBER: DFN2DIP-4P4F0-040D070US927-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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	90	87	83	86	82	79	76	66	64	62	52	50	49	39	38	37
2	86	79	73	68	78	72	67	62	58	54	51	46	43	41	34	32	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	26
4	72	61	54	48	65	56	49	44	45	41	37	36	32	30	27	25	23
5	66	55	47	41	59	50	43	38	41	35	32	32	28	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	27	29	25	22	22	19	17
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	17	15
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	18	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	18	16	17	14	12
10	45	33	26	21	41	31	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	800	800	800
5°	801	789	794
10°	795	779	784
15°	783	766	767
20°	767	749	750
25°	752	727	731
30°	732	708	706
35°	714	685	679
40°	691	661	654
45°	668	638	629
50°	643	614	599
55°	617	585	571
60°	587	551	540
65°	555	517	503
70°	514	474	464
75°	457	423	428
80°	389	359	358
85°	282	247	241

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 965 cd/sqm

TEST NUMBER: P913227

CATALOG NUMBER: DFN2DIP-4P4F0-040D070US927-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.0	1.3
10°-20°	326.5	3.8
20°-30°	479.8	5.6
30°-40°	557.3	6.5
40°-50°	556.6	6.5
50°-60°	485.3	5.6
60°-70°	358.8	4.2
70°-80°	203.0	2.4
80°-90°	56.9	0.7
90°-100°	61.7	0.7
100°-110°	230.0	2.7
110°-120°	610.1	7.1
120°-130°	1011.9	11.7
130°-140°	1074.9	12.5
140°-150°	999.0	11.6
150°-160°	803.2	9.3
160°-170°	517.5	6.0
170°-180°	178.1	2.1
0°-30°	922.4	10.7
0°-40°	1479.7	17.2
0°-60°	2521.7	29.2
0°-90°	3140.3	36.4
90°-120°	901.9	10.5
90°-150°	3987.7	46.2
90°-180°	5487.0	63.6
0°-180°	8626.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1233	1233	1233	1233	1233	
5°	1233	1228	1215	1225	1222	117
15°	1174	1167	1151	1156	1150	331
25°	1062	1053	1033	1035	1033	489
35°	916	905	886	878	873	572
45°	746	738	720	707	702	576
55°	564	557	543	529	523	505
65°	381	373	362	351	345	376
75°	199	197	191	184	186	213
85°	49	48	46	43	42	54
90°	1	16	27	34	36	8
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	779	802	836	209	111	767
125°	1101	1119	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1612	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1834	1826	1830	1839	1830	518
175°	1876	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

TEST NUMBER: P913227

CATALOG NUMBER: DFN2DIP-4P4F0-040D070US927-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1233.0	1233.0	1233.0	1233.0	1233.0
2.5°	1240.2	1234.2	1221.1	1233.0	1230.7
5°	1233.0	1228.3	1215.2	1224.6	1222.4
7.5°	1224.6	1217.6	1204.5	1214.1	1211.7
10°	1211.7	1203.4	1189.2	1198.6	1195.1
12.5°	1193.8	1186.8	1172.6	1178.5	1176.1
15°	1173.7	1166.6	1151.2	1156.0	1150.1
17.5°	1148.8	1141.8	1126.3	1132.2	1126.3
20°	1121.5	1114.4	1097.9	1101.4	1096.8
22.5°	1094.3	1083.6	1068.2	1068.2	1065.8
25°	1062.2	1052.8	1032.7	1035.0	1032.7
27.5°	1026.7	1018.3	1003.1	999.5	993.6
30°	991.2	981.7	963.9	960.4	955.6
32.5°	953.2	946.2	927.2	920.0	915.2
35°	916.5	904.7	885.7	878.5	872.6
37.5°	875.0	864.3	845.3	837.0	831.1
40°	832.3	822.8	803.7	793.2	788.5
42.5°	790.8	781.2	762.4	750.4	743.4
45°	745.8	737.5	719.6	706.7	701.9
47.5°	701.9	693.6	674.6	661.6	654.5
50°	655.6	649.7	633.1	616.5	610.5
52.5°	610.5	602.3	586.9	573.9	565.5
55°	564.4	557.2	543.0	528.8	522.9
57.5°	518.1	512.2	496.7	482.5	477.8
60°	471.8	467.1	450.6	437.5	434.0
62.5°	426.8	418.5	406.7	394.8	390.1
65°	380.6	373.4	361.6	350.9	345.1
67.5°	333.2	327.2	316.6	308.3	303.6
70°	289.3	284.6	273.9	265.5	260.9
72.5°	244.3	239.5	233.6	225.3	221.7
75°	199.2	196.9	190.8	183.8	186.2
77.5°	158.8	154.1	151.7	148.1	144.7
80°	118.6	117.3	114.9	111.5	109.1
82.5°	80.6	80.6	79.5	74.7	74.7
85°	48.6	47.5	46.3	42.6	41.5
87.5°	21.4	19.0	16.6	13.1	11.8
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.5
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.5	79.9	94.7	98.9
105°	411.7	452.3	82.6	97.4	102.9
107.5°	507.8	541.6	85.4	100.2	105.7
110°	600.0	628.3	237.0	101.6	106.9

TEST NUMBER: P913227

CATALOG NUMBER: DFN2DIP-4P4F0-040D070US927-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.7	710.9	687.9	104.2	108.4
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.6	885.6	908.7	714.9	360.2
120°	947.9	968.2	992.7	1008.9	826.1
122.5°	1023.7	1045.4	1072.6	1080.6	1082.0
125°	1100.9	1118.6	1144.3	1153.8	1157.8
127.5°	1171.3	1190.3	1210.7	1224.2	1225.5
130°	1237.7	1259.4	1274.2	1289.2	1287.9
132.5°	1305.4	1323.1	1337.9	1350.1	1348.8
135°	1362.3	1384.0	1396.1	1409.8	1407.1
137.5°	1421.8	1438.1	1451.8	1465.3	1461.3
140°	1480.0	1491.0	1505.8	1518.0	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1560.0
145°	1580.4	1579.0	1601.9	1611.5	1604.7
147.5°	1624.9	1621.0	1643.9	1650.7	1645.4
150°	1668.3	1658.9	1680.6	1688.6	1681.9
152.5°	1704.9	1694.1	1714.4	1722.5	1713.1
155°	1740.1	1728.0	1744.2	1752.3	1741.5
157.5°	1768.5	1757.8	1770.0	1779.5	1768.5
160°	1793.0	1784.8	1793.0	1801.0	1791.5
162.5°	1814.6	1806.5	1813.2	1822.7	1810.5
165°	1833.5	1825.5	1829.5	1839.0	1829.5
167.5°	1848.5	1840.2	1844.4	1853.9	1841.7
170°	1860.7	1852.5	1855.2	1864.7	1852.5
172.5°	1868.8	1860.7	1863.4	1872.9	1860.7
175°	1875.5	1866.0	1868.8	1878.2	1864.7
177.5°	1878.2	1868.8	1870.2	1879.7	1867.4
180°	1871.4	1871.4	1871.4	1871.4	1871.4

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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	5.11	5.86	6.17	6.93	8.38	4.66	5.42	5.73	6.48	7.94
	3H	6.77	7.44	7.84	8.52	9.99	6.28	6.95	7.35	8.03	9.50
	4H	7.35	7.99	8.44	9.07	10.55	6.86	7.50	7.94	8.57	10.05
	6H	7.75	8.34	8.85	9.42	10.91	7.25	7.84	8.35	8.92	10.41
	8H	7.85	8.41	8.95	9.51	11.00	7.35	7.91	8.45	9.01	10.49
	12H	7.90	8.43	9.01	9.52	11.03	7.39	7.92	8.50	9.01	10.52
4H	2H	5.56	6.20	6.65	7.27	8.75	5.20	5.84	6.30	6.92	8.40
	3H	7.42	7.95	8.52	9.06	10.55	7.01	7.54	8.11	8.65	10.14
	4H	8.13	8.62	9.24	9.72	11.23	7.71	8.20	8.81	9.29	10.80
	6H	8.65	9.07	9.76	10.19	11.69	8.22	8.64	9.33	9.75	11.26
	8H	8.80	9.19	9.91	10.30	11.82	8.36	8.75	9.47	9.86	11.38
	12H	8.87	9.22	10.00	10.35	11.87	8.42	8.77	9.55	9.90	11.42
8H	4H	8.32	8.71	9.43	9.82	11.34	7.95	8.34	9.06	9.45	10.97
	6H	8.95	9.28	10.09	10.43	11.95	8.57	8.90	9.71	10.05	11.56
	8H	9.18	9.46	10.32	10.59	12.13	8.79	9.07	9.93	10.20	11.74
	12H	9.31	9.56	10.45	10.69	12.26	8.90	9.15	10.04	10.28	11.85
12H	4H	8.30	8.66	9.43	9.78	11.31	7.93	8.29	9.06	9.41	10.94
	6H	8.98	9.27	10.12	10.40	11.94	8.61	8.90	9.75	10.03	11.57
	8H	9.23	9.47	10.37	10.60	12.18	8.85	9.09	9.99	10.22	11.80

END OF REPORT