

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: P913203

Luminaire Tested: DFN2DIP-4P4F0-030D070US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913203
REPORT IS A COMBINATION OF REPORTS P900647 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D070US927-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

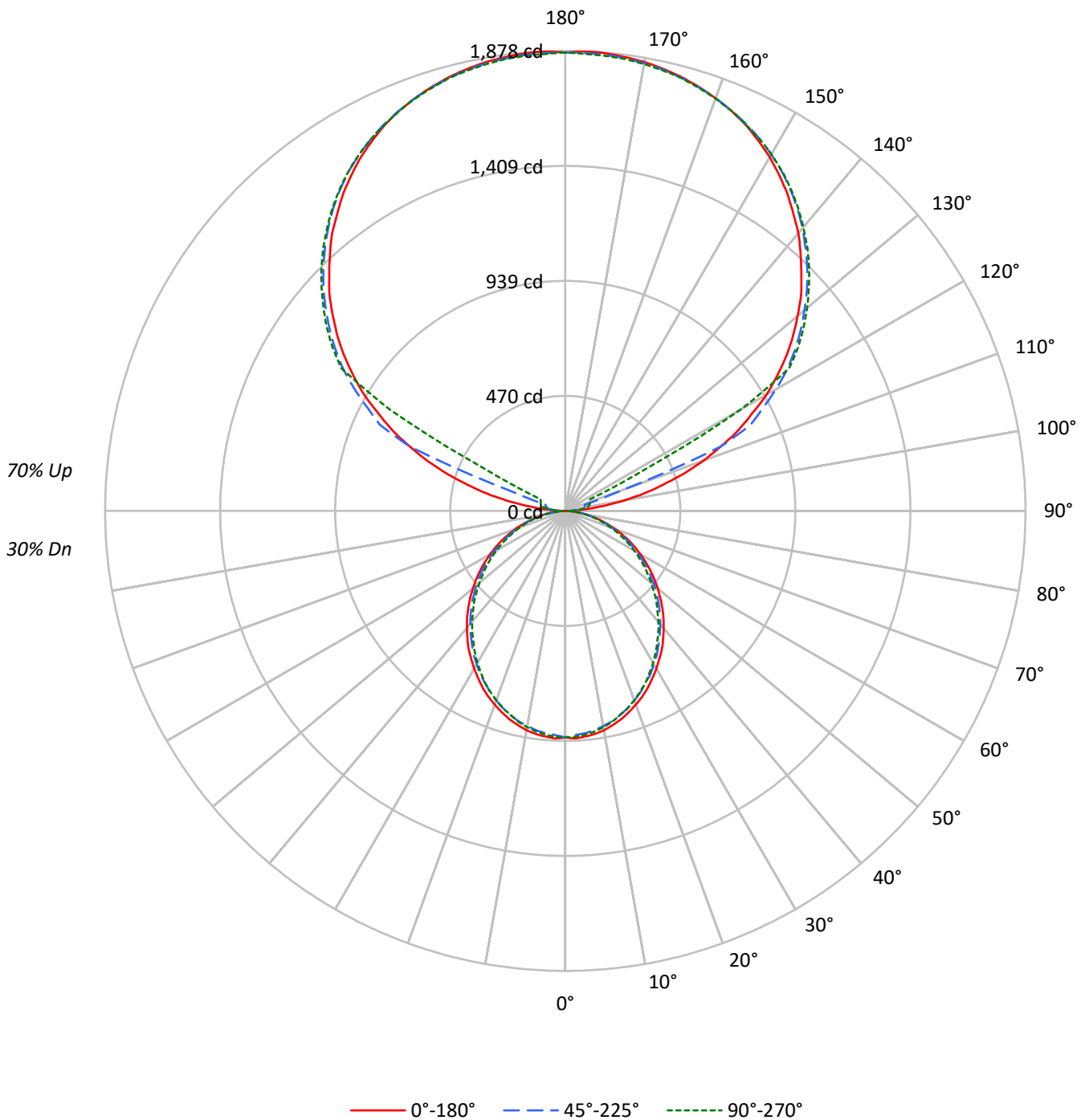
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7842.6 lumens
Efficiency: N/A
Efficacy: 88.3 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): 88.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	33	33	32	33	33	32	25
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	29	28	27	29	28	27	21
3	77	68	61	56	69	62	56	51	49	45	41	37	34	32	26	24	23	26	24	23	18
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20	23	21	20	15
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17	21	19	17	13
6	60	48	40	35	53	43	37	32	35	30	26	27	23	20	19	17	15	19	17	15	12
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13	17	15	13	10
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12	16	14	12	9
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11	15	12	11	8
10	44	32	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10	14	11	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	600	600	600
5°	601	592	596
10°	596	584	588
15°	587	575	575
20°	576	561	563
25°	564	546	548
30°	549	531	529
35°	535	514	510
40°	518	496	491
45°	501	479	471
50°	482	460	449
55°	463	439	429
60°	440	414	405
65°	416	387	377
70°	386	356	348
75°	343	318	321
80°	292	269	268
85°	212	185	181

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 965 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	87.0	1.1
10°-20°	244.9	3.1
20°-30°	359.9	4.6
30°-40°	418.0	5.3
40°-50°	417.5	5.3
50°-60°	364.0	4.6
60°-70°	269.1	3.4
70°-80°	152.3	1.9
80°-90°	43.5	0.6
90°-100°	61.7	0.8
100°-110°	230.0	2.9
110°-120°	610.1	7.8
120°-130°	1011.9	12.9
130°-140°	1074.9	13.7
140°-150°	999.0	12.7
150°-160°	803.2	10.2
160°-170°	517.5	6.6
170°-180°	178.1	2.3
0°-30°	691.8	8.8
0°-40°	1109.8	14.2
0°-60°	1891.3	24.1
0°-90°	2356.1	30.0
90°-120°	901.9	11.5
90°-150°	3987.7	50.8
90°-180°	5487.0	70.0
0°-180°	7842.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	925	925	925	925	925	
5°	925	921	911	918	917	88
15°	880	875	863	867	862	248
25°	797	790	774	776	774	367
35°	687	678	664	659	654	429
45°	559	553	540	530	526	432
55°	423	418	407	397	392	378
65°	286	280	271	263	259	282
75°	149	148	143	138	140	159
85°	36	36	35	32	31	41
90°	1	16	27	34	36	7
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	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	924.7	924.7	924.7	924.7	924.7
2.5°	930.1	925.7	915.8	924.7	923.0
5°	924.7	921.2	911.4	918.5	916.8
7.5°	918.5	913.2	903.4	910.6	908.8
10°	908.8	902.5	891.9	899.0	896.4
12.5°	895.4	890.1	879.5	883.8	882.1
15°	880.3	875.0	863.4	867.0	862.5
17.5°	861.6	856.3	844.7	849.1	844.7
20°	841.1	835.8	823.4	826.0	822.5
22.5°	820.8	812.8	801.1	801.1	799.3
25°	796.7	789.6	774.5	776.3	774.5
27.5°	770.0	763.7	752.3	749.6	745.2
30°	743.4	736.3	722.9	720.3	716.7
32.5°	714.9	709.6	695.4	690.0	686.4
35°	687.4	678.5	664.2	658.9	654.4
37.5°	656.2	648.2	634.0	627.7	623.3
40°	624.2	617.1	602.8	594.9	591.4
42.5°	593.1	586.0	571.8	562.8	557.5
45°	559.4	553.1	539.7	530.0	526.4
47.5°	526.4	520.2	506.0	496.1	490.8
50°	491.7	487.3	474.8	462.4	458.0
52.5°	458.0	451.7	440.2	430.4	424.1
55°	423.3	418.0	407.3	396.6	392.2
57.5°	388.6	384.1	372.6	361.9	358.3
60°	353.9	350.4	337.9	328.1	325.5
62.5°	320.1	313.9	305.0	296.1	292.6
65°	285.5	280.1	271.2	263.2	258.8
67.5°	249.9	245.4	237.4	231.2	227.7
70°	217.0	213.4	205.4	199.2	195.7
72.5°	183.2	179.6	175.2	169.0	166.4
75°	149.3	147.7	143.1	137.8	139.7
77.5°	119.1	115.6	113.8	111.1	108.5
80°	89.0	88.0	86.2	83.6	81.8
82.5°	60.4	60.4	59.7	56.0	56.0
85°	36.4	35.6	34.7	32.0	31.1
87.5°	16.0	14.3	12.4	9.8	8.9
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



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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	3.31	4.01	4.42	5.12	6.65	2.86	3.57	3.98	4.68	6.21
	3H	4.96	5.59	6.08	6.71	8.26	4.47	5.10	5.59	6.22	7.77
	4H	5.55	6.15	6.68	7.26	8.81	5.05	5.65	6.18	6.77	8.32
	6H	5.94	6.49	7.08	7.61	9.18	5.44	6.00	6.58	7.11	8.68
	8H	6.04	6.57	7.19	7.70	9.26	5.54	6.07	6.68	7.20	8.76
	12H	6.09	6.59	7.23	7.72	9.30	5.58	6.08	6.73	7.21	8.79
4H	2H	3.75	4.35	4.89	5.47	7.02	3.40	4.00	4.53	5.11	6.66
	3H	5.61	6.11	6.75	7.25	8.82	5.20	5.70	6.34	6.84	8.41
	4H	6.32	6.78	7.47	7.91	9.50	5.90	6.36	7.04	7.49	9.07
	6H	6.83	7.23	7.98	8.38	9.96	6.40	6.80	7.55	7.95	9.52
	8H	6.98	7.35	8.13	8.50	10.09	6.54	6.91	7.70	8.06	9.65
	12H	7.05	7.38	8.22	8.54	10.14	6.60	6.93	7.77	8.09	9.69
8H	4H	6.51	6.87	7.66	8.02	9.61	6.13	6.50	7.28	7.64	9.24
	6H	7.14	7.44	8.31	8.63	10.22	6.75	7.06	7.93	8.25	9.83
	8H	7.36	7.63	8.54	8.79	10.40	6.97	7.23	8.14	8.40	10.01
	12H	7.49	7.72	8.67	8.88	10.53	7.08	7.31	8.26	8.47	10.12
12H	4H	6.48	6.82	7.65	7.98	9.57	6.12	6.45	7.28	7.61	9.20
	6H	7.17	7.43	8.34	8.60	10.21	6.79	7.06	7.97	8.23	9.84
	8H	7.40	7.64	8.59	8.80	10.44	7.03	7.26	8.21	8.42	10.06