

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: P925033

Luminaire Tested: DFN2DIP-PN4F0-050D110US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925033
REPORT IS A COMBINATION OF REPORTS P901257 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D110US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

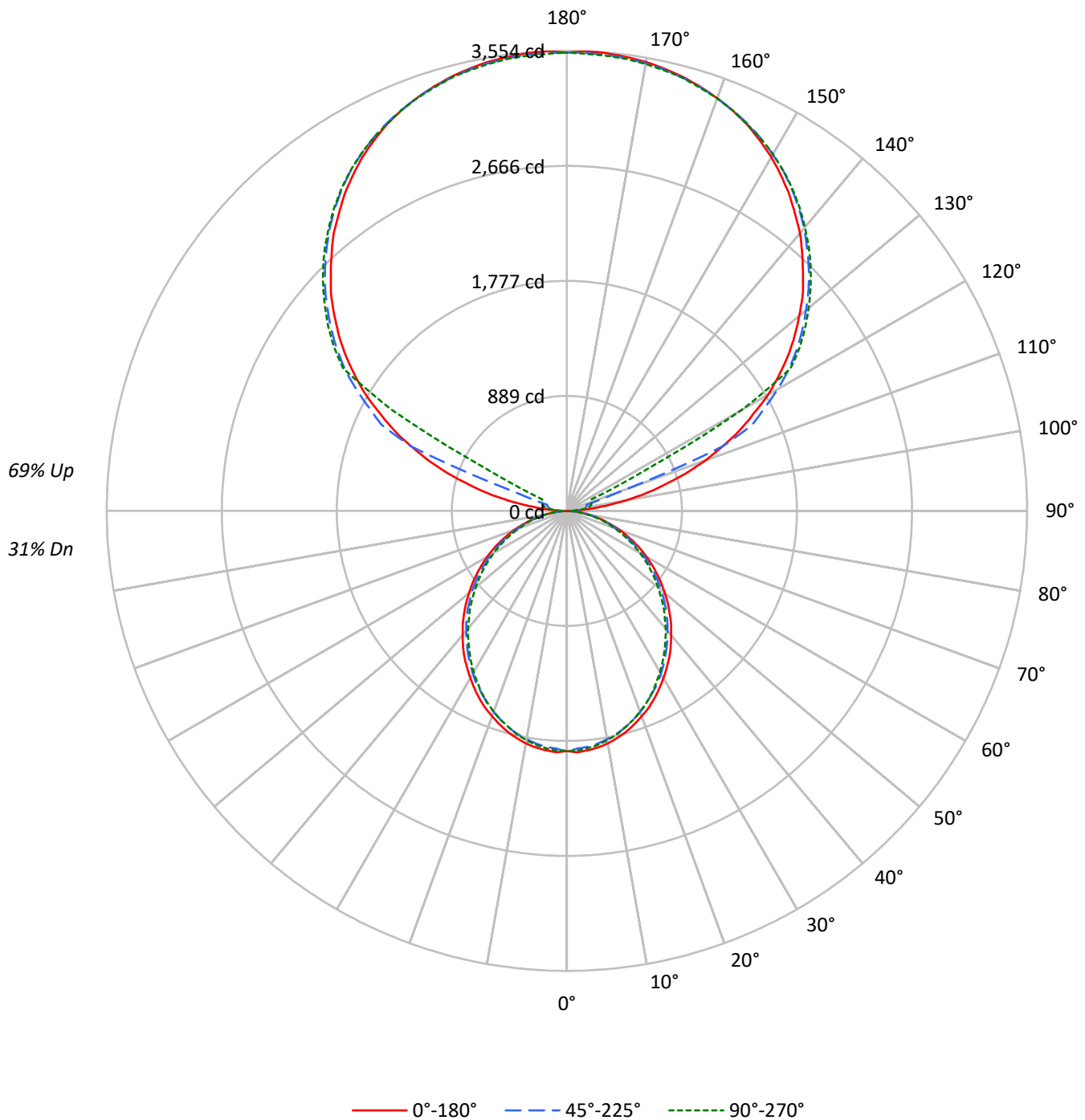
Lumens per Lamp: N/A
Luminaire Lumens: 15111.3 lumens
Efficiency: N/A
Efficacy: 111.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 135.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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
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	92	92	92	92	73	73	73	55	55	55	39	39	39
1	94	89	86	82	84	80	77	74	64	62	60	48	47	46	34	34	33
2	85	78	72	67	76	70	65	61	56	52	49	43	40	38	30	29	28
3	78	69	61	56	70	62	56	51	49	45	41	38	35	32	27	25	24
4	71	61	53	47	64	55	48	43	44	39	35	33	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	27	24	22	19	18
6	60	48	40	35	54	44	37	32	35	30	26	27	24	21	20	17	15
7	55	43	36	30	50	39	33	28	32	27	23	25	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	48	36	28	24	43	32	26	22	26	22	18	21	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	19	16	19	16	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1355	1355	1355
5°	1357	1336	1345
10°	1346	1318	1327
15°	1326	1297	1299
20°	1299	1267	1270
25°	1273	1231	1237
30°	1239	1198	1194
35°	1208	1158	1149
40°	1169	1118	1106
45°	1130	1079	1062
50°	1088	1037	1012
55°	1043	988	965
60°	993	931	912
65°	939	871	849
70°	869	799	781
75°	772	712	719
80°	656	602	599
85°	474	410	401

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1889 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.7	1.2
10°-20°	491.5	3.3
20°-30°	722.3	4.8
30°-40°	838.9	5.6
40°-50°	837.9	5.5
50°-60°	730.6	4.8
60°-70°	540.1	3.6
70°-80°	305.6	2.0
80°-90°	86.9	0.6
90°-100°	116.8	0.8
100°-110°	435.4	2.9
110°-120°	1154.6	7.6
120°-130°	1915.0	12.7
130°-140°	2034.2	13.5
140°-150°	1890.5	12.5
150°-160°	1519.9	10.1
160°-170°	979.4	6.5
170°-180°	337.1	2.2
0°-30°	1388.5	9.2
0°-40°	2227.5	14.7
0°-60°	3796.0	25.1
0°-90°	4728.5	31.3
90°-120°	1706.7	11.3
90°-150°	7546.4	49.9
90°-180°	10383.0	68.7
0°-180°	15111.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1856	1856	1856	1856	1856	
5°	1856	1849	1829	1844	1840	176
15°	1767	1756	1733	1740	1731	498
25°	1599	1585	1554	1558	1554	736
35°	1380	1362	1333	1322	1314	862
45°	1123	1110	1083	1064	1057	866
55°	850	839	817	796	787	760
65°	573	562	544	528	519	567
75°	300	296	287	277	280	320
85°	73	71	70	64	62	82
90°	2	31	51	64	69	14
95°	166	82	100	113	110	197
105°	779	856	156	184	195	832
115°	1474	1517	1581	395	210	1451
125°	2083	2117	2166	2183	2191	1858
135°	2578	2619	2642	2668	2663	1992
145°	2991	2988	3032	3050	3037	1871
155°	3293	3270	3301	3316	3296	1517
165°	3470	3454	3462	3480	3462	980
175°	3549	3531	3536	3554	3529	338
180°	3542	3542	3542	3542	3542	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1856.0	1856.0	1856.0	1856.0	1856.0
2.5°	1866.8	1857.9	1838.3	1856.0	1852.7
5°	1856.0	1849.0	1829.3	1843.5	1840.2
7.5°	1843.5	1832.9	1813.3	1827.7	1824.0
10°	1824.0	1811.6	1790.2	1804.3	1799.1
12.5°	1797.1	1786.6	1765.2	1774.1	1770.4
15°	1766.8	1756.2	1732.9	1740.2	1731.2
17.5°	1729.3	1718.7	1695.4	1704.3	1695.4
20°	1688.3	1677.7	1652.7	1658.0	1651.0
22.5°	1647.4	1631.2	1608.0	1608.0	1604.3
25°	1599.1	1584.9	1554.5	1558.0	1554.5
27.5°	1545.5	1533.0	1509.9	1504.6	1495.7
30°	1492.1	1477.7	1451.0	1445.7	1438.5
32.5°	1434.9	1424.3	1395.7	1384.9	1377.8
35°	1379.6	1361.8	1333.2	1322.4	1313.6
37.5°	1317.1	1301.1	1272.4	1259.9	1251.1
40°	1253.0	1238.6	1210.0	1194.0	1186.9
42.5°	1190.5	1176.1	1147.7	1129.6	1119.0
45°	1122.7	1110.2	1083.3	1063.8	1056.6
47.5°	1056.6	1044.1	1015.5	995.8	985.2
50°	986.9	978.0	953.0	928.1	919.1
52.5°	919.1	906.6	883.5	863.8	851.3
55°	849.6	838.9	817.4	796.0	787.1
57.5°	779.9	771.0	747.7	726.4	719.1
60°	710.3	703.3	678.3	658.5	653.3
62.5°	642.5	630.0	612.2	594.3	587.2
65°	573.0	562.2	544.4	528.3	519.4
67.5°	501.6	492.6	476.6	464.1	456.9
70°	435.5	428.3	412.2	399.7	392.8
72.5°	367.8	360.5	351.6	339.1	333.8
75°	299.7	296.3	287.2	276.7	280.3
77.5°	239.2	231.9	228.4	223.0	217.8
80°	178.6	176.7	173.1	167.8	164.2
82.5°	121.3	121.3	119.6	112.5	112.5
85°	73.1	71.4	69.6	64.2	62.5
87.5°	32.1	28.6	25.0	19.7	17.8
90°	2.5	30.7	51.1	64.2	69.1
92.5°	64.2	53.9	61.4	66.7	69.1
95°	166.5	81.9	99.8	112.9	110.2
97.5°	299.7	89.8	130.5	138.4	140.9
100°	453.7	102.6	146.1	166.5	171.6
102.5°	622.6	617.7	151.2	179.3	187.2
105°	779.0	856.0	156.5	184.4	194.8
107.5°	961.1	1024.9	161.6	189.6	200.0
110°	1135.4	1189.0	448.6	192.3	202.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1299.4	1345.3	1301.8	197.2	205.1
115°	1473.5	1517.0	1581.3	394.7	210.3
117.5°	1624.8	1675.9	1719.7	1353.0	681.6
120°	1793.9	1832.3	1878.5	1909.2	1563.2
122.5°	1937.3	1978.3	2029.7	2045.0	2047.8
125°	2083.3	2116.8	2165.5	2183.4	2191.1
127.5°	2216.6	2252.5	2291.1	2316.7	2319.2
130°	2342.3	2383.4	2411.3	2439.7	2437.3
132.5°	2470.4	2503.9	2531.9	2555.0	2552.6
135°	2578.2	2619.2	2642.0	2668.0	2662.7
137.5°	2690.8	2721.5	2747.3	2772.9	2765.3
140°	2800.9	2821.6	2849.6	2872.7	2859.9
142.5°	2893.4	2911.3	2944.5	2964.9	2952.2
145°	2990.8	2988.0	3031.5	3049.6	3036.8
147.5°	3075.1	3067.5	3111.0	3123.8	3113.8
150°	3157.3	3139.3	3180.3	3195.6	3182.8
152.5°	3226.3	3205.9	3244.3	3259.8	3241.9
155°	3293.0	3270.1	3300.8	3316.1	3295.7
157.5°	3346.8	3326.4	3349.6	3367.5	3346.8
160°	3393.1	3377.5	3393.1	3408.3	3390.3
162.5°	3433.8	3418.7	3431.4	3449.4	3426.3
165°	3469.8	3454.5	3462.2	3480.1	3462.2
167.5°	3498.0	3482.6	3490.5	3508.4	3485.3
170°	3521.2	3505.7	3510.8	3528.8	3505.7
172.5°	3536.4	3521.2	3526.4	3544.3	3521.2
175°	3549.2	3531.2	3536.4	3554.4	3528.8
177.5°	3554.4	3536.4	3539.1	3557.1	3534.0
180°	3541.6	3541.6	3541.6	3541.6	3541.6

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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	6.29	7.01	7.40	8.11	9.62	5.85	6.57	6.96	7.67	9.18
	3H	7.95	8.59	9.06	9.69	11.23	7.46	8.10	8.57	9.21	10.74
	4H	8.53	9.14	9.65	10.24	11.78	8.04	8.65	9.16	9.76	11.30
	6H	8.92	9.48	10.05	10.59	12.14	8.43	8.99	9.56	10.10	11.65
	8H	9.02	9.56	10.16	10.68	12.23	8.53	9.06	9.67	10.19	11.73
	12H	9.07	9.57	10.21	10.69	12.26	8.57	9.07	9.71	10.20	11.76
4H	2H	6.74	7.35	7.87	8.45	9.99	6.39	6.99	7.51	8.10	9.64
	3H	8.59	9.10	9.73	10.23	11.79	8.19	8.70	9.32	9.83	11.38
	4H	9.30	9.77	10.44	10.89	12.46	8.89	9.35	10.02	10.48	12.05
	6H	9.81	10.21	10.96	11.36	12.92	9.39	9.79	10.53	10.94	12.50
	8H	9.96	10.33	11.10	11.47	13.05	9.53	9.91	10.68	11.04	12.62
	12H	10.03	10.37	11.19	11.52	13.10	9.59	9.93	10.75	11.08	12.66
8H	4H	9.49	9.86	10.63	11.00	12.58	9.12	9.49	10.26	10.63	12.21
	6H	10.12	10.42	11.28	11.61	13.18	9.74	10.05	10.91	11.23	12.80
	8H	10.34	10.61	11.51	11.77	13.36	9.95	10.22	11.12	11.38	12.98
	12H	10.46	10.70	11.64	11.86	13.49	10.06	10.30	11.24	11.46	13.09
12H	4H	9.47	9.81	10.63	10.96	12.54	9.10	9.44	10.27	10.59	12.18
	6H	10.15	10.41	11.32	11.57	13.17	9.78	10.05	10.95	11.21	12.80
	8H	10.38	10.62	11.56	11.78	13.40	10.01	10.25	11.18	11.40	13.03

END OF REPORT