

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: P918739

Luminaire Tested: DFN2DIP-4P4F0-070D030US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918739
REPORT IS A COMBINATION OF REPORTS P900607 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D030US935-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

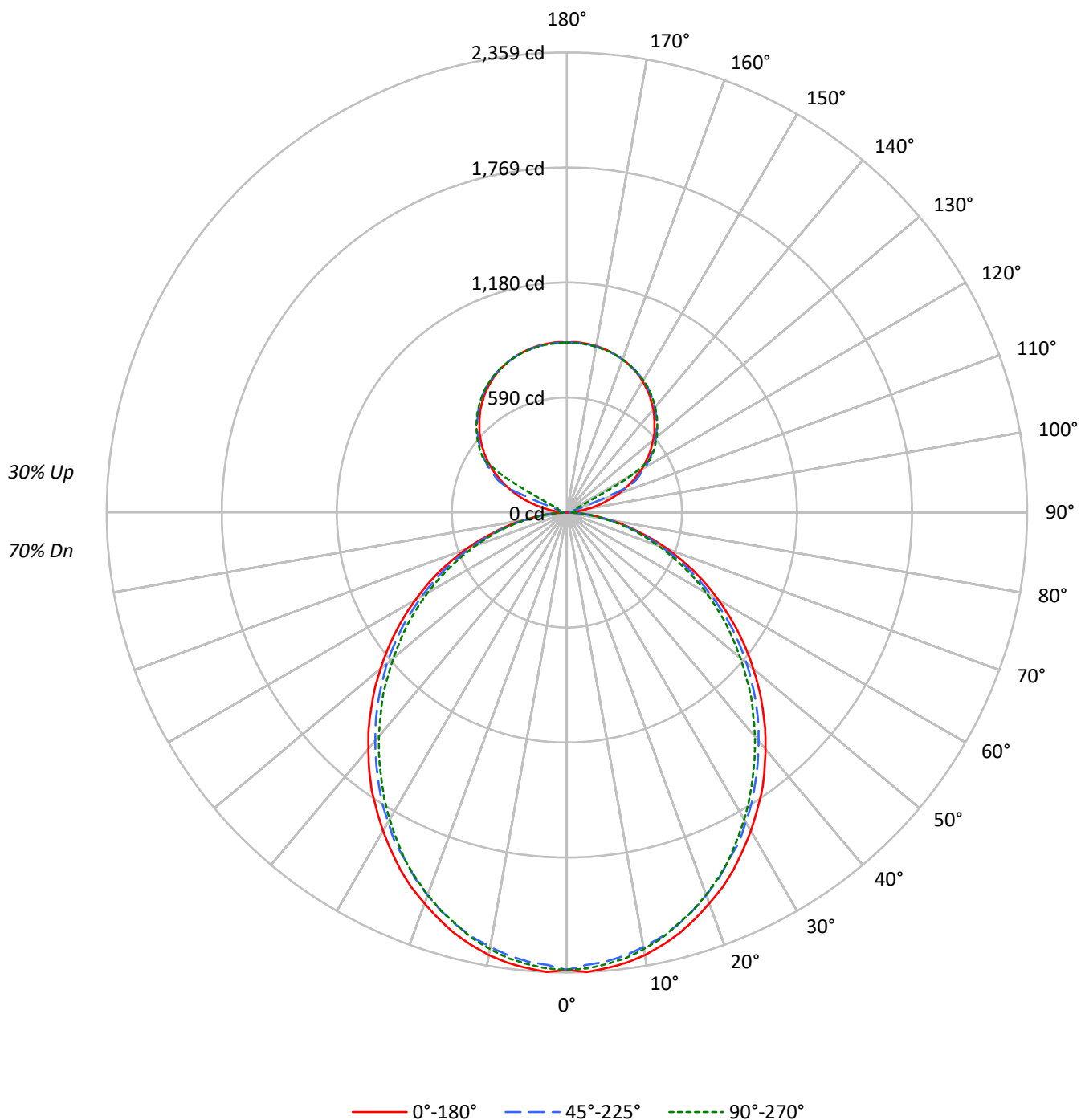
Lumens per Lamp: N/A
Luminaire Lumens: 8523.9 lumens
Efficiency: N/A
Efficacy: 87.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 97.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	80	78	74	72	70	66	64	63
2	93	85	79	74	88	81	75	71	73	68	64	65	62	59	58	55	53
3	85	75	68	62	80	71	65	59	64	59	54	58	53	50	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	47	43	46	42	39
5	72	60	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	27
8	57	44	36	31	54	42	35	30	38	32	28	35	30	26	32	27	24
9	53	40	33	27	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1521	1521	1521
5°	1524	1501	1511
10°	1512	1481	1491
15°	1490	1457	1460
20°	1460	1424	1427
25°	1430	1384	1390
30°	1393	1346	1343
35°	1357	1302	1292
40°	1314	1258	1244
45°	1270	1214	1195
50°	1223	1167	1139
55°	1173	1113	1087
60°	1117	1049	1027
65°	1056	983	957
70°	978	902	882
75°	870	805	813
80°	740	683	680
85°	537	469	459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1270 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.7	2.6
10°-20°	621.0	7.3
20°-30°	912.7	10.7
30°-40°	1060.0	12.4
40°-50°	1058.7	12.4
50°-60°	923.2	10.8
60°-70°	682.4	8.0
70°-80°	386.1	4.5
80°-90°	103.5	1.2
90°-100°	28.7	0.3
100°-110°	107.2	1.3
110°-120°	284.2	3.3
120°-130°	471.3	5.5
130°-140°	500.7	5.9
140°-150°	465.3	5.5
150°-160°	374.1	4.4
160°-170°	241.1	2.8
170°-180°	83.0	1.0
0°-30°	1754.4	20.6
0°-40°	2814.4	33.0
0°-60°	4796.3	56.3
0°-90°	5968.3	70.0
90°-120°	420.1	4.9
90°-150°	1857.5	21.8
90°-180°	2556.0	30.0
0°-180°	8523.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	1	8	13	16	17	8
95°	41	20	24	28	27	49
105°	192	211	38	45	48	205
115°	363	373	389	97	52	357
125°	513	521	533	537	539	457
135°	635	645	650	657	655	490
145°	736	736	746	751	747	460
155°	810	805	812	816	811	373
165°	854	850	852	857	852	241
175°	874	869	870	875	869	83
180°	872	872	872	872	872	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.0	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.2	2153.5	2142.2
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1564.9	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.5	857.0	832.2	825.4
62.5°	811.7	796.0	773.5	751.0	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	0.6	7.6	12.6	15.8	17.0
92.5°	15.8	13.3	15.2	16.4	17.0
95°	41.0	20.1	24.5	27.8	27.1
97.5°	73.8	22.1	32.1	34.1	34.7
100°	111.7	25.2	36.0	41.0	42.3
102.5°	153.3	152.1	37.2	44.1	46.1
105°	191.7	210.7	38.5	45.4	48.0
107.5°	236.5	252.3	39.8	46.7	49.2
110°	279.5	292.7	110.4	47.4	49.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	319.9	331.1	320.5	48.6	50.5
115°	362.7	373.4	389.2	97.1	51.7
117.5°	399.9	412.5	423.3	333.0	167.8
120°	441.5	451.0	462.4	469.9	384.8
122.5°	476.8	487.0	499.6	503.3	504.0
125°	512.8	521.0	533.0	537.4	539.3
127.5°	545.6	554.4	564.0	570.2	570.8
130°	576.5	586.7	593.6	600.5	599.9
132.5°	608.0	616.3	623.2	628.9	628.3
135°	634.6	644.7	650.3	656.7	655.4
137.5°	662.3	669.9	676.2	682.5	680.6
140°	689.4	694.5	701.4	707.1	704.0
142.5°	712.2	716.6	724.8	729.8	726.7
145°	736.2	735.5	746.2	750.6	747.4
147.5°	756.9	755.0	765.8	768.9	766.4
150°	777.1	772.7	782.8	786.5	783.4
152.5°	794.1	789.1	798.6	802.4	798.0
155°	810.5	804.9	812.4	816.2	811.2
157.5°	823.8	818.8	824.5	828.9	823.8
160°	835.2	831.4	835.2	839.0	834.5
162.5°	845.2	841.5	844.6	849.0	843.3
165°	854.0	850.3	852.2	856.6	852.2
167.5°	861.0	857.2	859.1	863.6	857.9
170°	866.7	862.9	864.2	868.6	862.9
172.5°	870.5	866.7	868.0	872.4	866.7
175°	873.6	869.2	870.5	874.9	868.6
177.5°	874.9	870.5	871.2	875.5	869.9
180°	871.8	871.8	871.8	871.8	871.8

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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	10.42	11.49	11.18	12.28	13.23	9.97	11.05	10.74	11.84	12.79
	3H	12.10	13.07	12.88	13.86	14.85	11.61	12.58	12.39	13.37	14.36
	4H	12.70	13.61	13.50	14.42	15.41	12.21	13.12	13.00	13.92	14.92
	6H	13.12	13.96	13.93	14.77	15.78	12.62	13.46	13.42	14.27	15.28
	8H	13.23	14.03	14.05	14.86	15.87	12.73	13.53	13.55	14.36	15.37
	12H	13.29	14.05	14.11	14.88	15.92	12.78	13.54	13.60	14.37	15.41
4H	2H	10.91	11.82	11.71	12.62	13.62	10.55	11.46	11.35	12.27	13.26
	3H	12.80	13.56	13.61	14.40	15.41	12.39	13.15	13.20	13.99	15.00
	4H	13.53	14.22	14.35	15.06	16.10	13.10	13.80	13.93	14.63	15.67
	6H	14.06	14.66	14.90	15.52	16.56	13.63	14.23	14.47	15.09	16.13
	8H	14.22	14.78	15.06	15.63	16.69	13.78	14.34	14.62	15.20	16.25
	12H	14.30	14.81	15.17	15.69	16.75	13.85	14.36	14.72	15.24	16.30
8H	4H	13.74	14.30	14.59	15.16	16.21	13.36	13.92	14.21	14.78	15.84
	6H	14.39	14.85	15.26	15.75	16.81	14.00	14.47	14.88	15.37	16.42
	8H	14.61	15.03	15.50	15.92	16.99	14.22	14.63	15.11	15.53	16.60
	12H	14.76	15.12	15.65	16.01	17.14	14.35	14.71	15.24	15.60	16.72
12H	4H	13.74	14.24	14.60	15.12	16.18	13.37	13.87	14.23	14.75	15.81
	6H	14.42	14.83	15.30	15.73	16.80	14.05	14.46	14.93	15.35	16.43
	8H	14.68	15.04	15.56	15.92	17.05	14.30	14.66	15.18	15.54	16.67