

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: P902295

Luminaire Tested: DFN2DIP-4P4F0-030D080US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902295
REPORT IS A COMBINATION OF REPORTS P900659 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D080US830-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

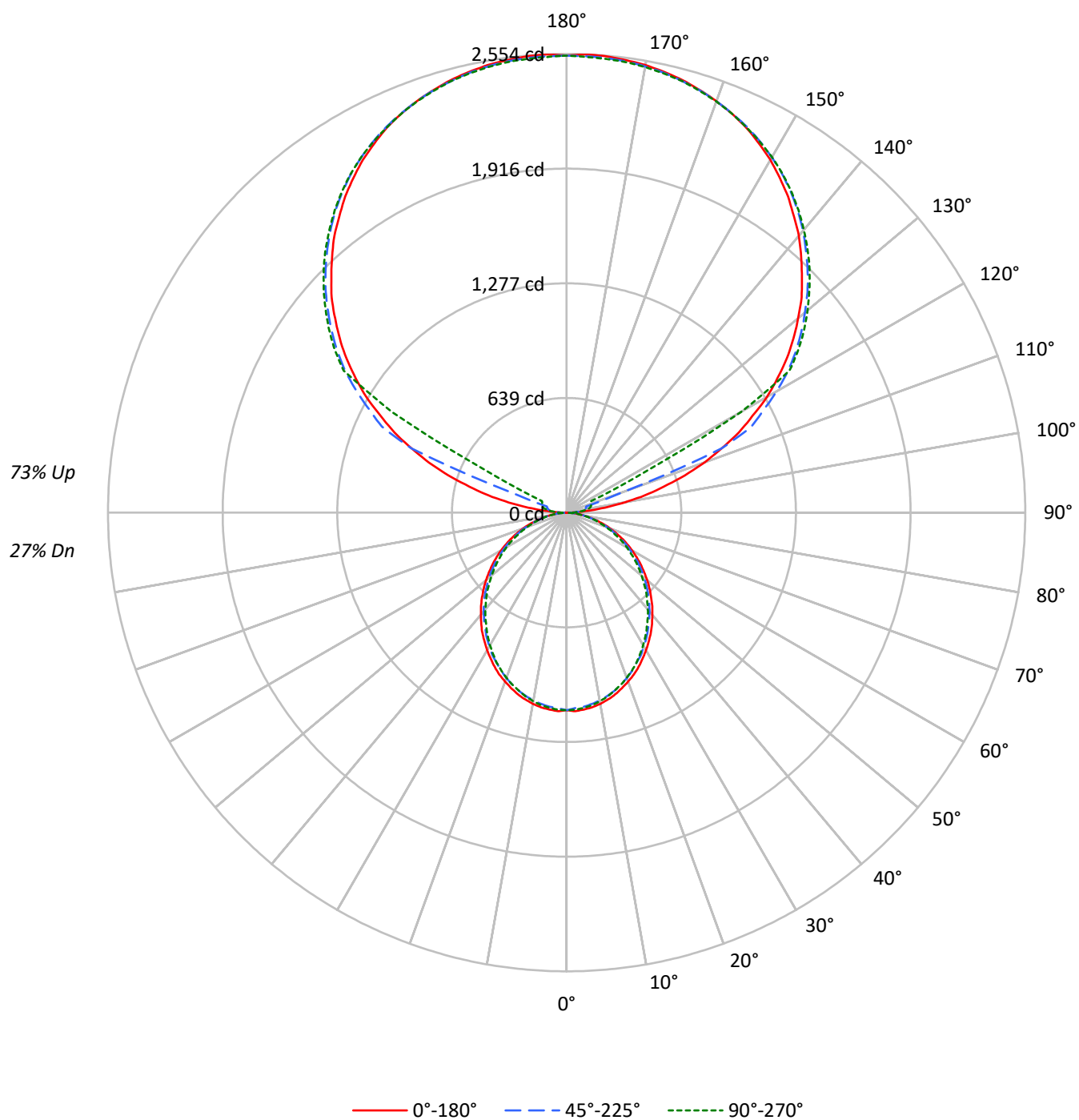
Lumens per Lamp: N/A
Luminaire Lumens: 10264.3 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
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
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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	81	83	79	76	73	62	60	58	46	45	43	31	30	30
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25
3	77	68	61	55	68	61	55	50	48	44	40	36	33	31	24	23	21
4	70	60	52	47	63	54	47	42	42	38	34	32	29	26	22	20	18
5	64	53	45	40	57	48	41	36	38	33	29	28	25	23	19	18	16
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	12	10
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	714	714	714
5°	715	704	709
10°	709	695	700
15°	699	684	685
20°	685	668	670
25°	671	649	652
30°	653	632	630
35°	637	611	606
40°	616	590	584
45°	596	569	561
50°	574	548	534
55°	550	522	510
60°	524	492	482
65°	495	461	449
70°	459	423	414
75°	408	378	382
80°	347	320	319
85°	252	220	215

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1313 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.6	1.0
10°-20°	291.4	2.8
20°-30°	428.2	4.2
30°-40°	497.3	4.8
40°-50°	496.7	4.8
50°-60°	433.1	4.2
60°-70°	320.2	3.1
70°-80°	181.1	1.8
80°-90°	52.3	0.5
90°-100°	83.9	0.8
100°-110°	312.8	3.0
110°-120°	829.6	8.1
120°-130°	1376.0	13.4
130°-140°	1461.6	14.2
140°-150°	1358.4	13.2
150°-160°	1092.1	10.6
160°-170°	703.7	6.9
170°-180°	242.2	2.4
0°-30°	823.1	8.0
0°-40°	1320.4	12.9
0°-60°	2250.3	21.9
0°-90°	2803.8	27.3
90°-120°	1226.4	11.9
90°-150°	5422.4	52.8
90°-180°	7460.0	72.7
0°-180°	10264.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1100	1100	1100	1100	1100	
5°	1100	1096	1084	1093	1091	104
15°	1047	1041	1027	1032	1026	295
25°	948	940	922	924	922	436
35°	818	807	790	784	779	511
45°	666	658	642	631	626	514
55°	504	497	485	472	467	450
65°	340	333	323	313	308	336
75°	178	176	170	164	166	190
85°	43	42	41	38	37	48
90°	2	22	37	46	50	9
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2501	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1100.2	1100.2	1100.2	1100.2	1100.2
2.5°	1106.6	1101.4	1089.7	1100.2	1098.3
5°	1100.2	1096.1	1084.4	1092.9	1090.8
7.5°	1092.9	1086.6	1074.9	1083.5	1081.3
10°	1081.3	1073.8	1061.2	1069.6	1066.5
12.5°	1065.4	1059.0	1046.4	1051.6	1049.5
15°	1047.4	1041.1	1027.3	1031.5	1026.2
17.5°	1025.1	1018.9	1005.0	1010.3	1005.0
20°	1000.8	994.5	979.7	982.8	978.6
22.5°	976.6	967.0	953.2	953.2	951.0
25°	947.9	939.5	921.5	923.6	921.5
27.5°	916.2	908.7	895.0	891.9	886.6
30°	884.5	876.0	860.2	857.0	852.7
32.5°	850.6	844.3	827.4	821.0	816.7
35°	817.8	807.3	790.3	783.9	778.6
37.5°	780.8	771.3	754.3	746.9	741.6
40°	742.7	734.2	717.3	707.8	703.6
42.5°	705.7	697.2	680.3	669.7	663.4
45°	665.5	658.1	642.2	630.6	626.3
47.5°	626.3	619.0	602.0	590.3	584.0
50°	585.0	579.8	565.0	550.2	544.9
52.5°	544.9	537.4	523.8	512.1	504.6
55°	503.7	497.3	484.6	471.9	466.7
57.5°	462.3	457.0	443.3	430.6	426.3
60°	421.0	416.9	402.1	390.4	387.3
62.5°	380.9	373.4	362.9	352.3	348.1
65°	339.7	333.3	322.7	313.2	307.9
67.5°	297.4	292.0	282.5	275.1	270.9
70°	258.2	253.9	244.4	237.0	232.8
72.5°	218.0	213.7	208.4	201.0	197.9
75°	177.7	175.7	170.3	164.0	166.2
77.5°	141.8	137.5	135.3	132.2	129.1
80°	105.8	104.7	102.5	99.4	97.4
82.5°	71.9	71.9	71.0	66.6	66.6
85°	43.4	42.3	41.3	38.1	37.0
87.5°	19.0	17.0	14.8	11.7	10.6
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.2	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.8	134.5
105°	559.8	615.1	112.4	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.9	854.3	322.3	138.2	145.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	933.7	966.7	935.5	141.7	147.4
115°	1058.8	1090.1	1136.1	283.6	151.1
117.5°	1167.4	1204.2	1235.7	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.9	1123.2
122.5°	1391.9	1421.5	1458.5	1469.4	1471.4
125°	1496.9	1521.0	1555.9	1568.9	1574.3
127.5°	1592.7	1618.5	1646.3	1664.6	1666.4
130°	1683.0	1712.5	1732.7	1753.0	1751.2
132.5°	1775.1	1799.1	1819.3	1835.9	1834.1
135°	1852.5	1882.0	1898.4	1917.0	1913.3
137.5°	1933.4	1955.5	1974.1	1992.4	1987.0
140°	2012.5	2027.4	2047.6	2064.2	2054.9
142.5°	2079.1	2091.9	2115.7	2130.4	2121.2
145°	2149.0	2147.0	2178.3	2191.2	2182.0
147.5°	2209.6	2204.1	2235.3	2244.6	2237.3
150°	2268.6	2255.7	2285.2	2296.1	2287.0
152.5°	2318.3	2303.6	2331.1	2342.3	2329.4
155°	2366.2	2349.8	2371.8	2382.7	2368.1
157.5°	2404.8	2390.2	2406.8	2419.7	2404.8
160°	2438.1	2427.0	2438.1	2449.0	2436.1
162.5°	2467.4	2456.5	2465.6	2478.5	2461.9
165°	2493.2	2482.3	2487.7	2500.6	2487.7
167.5°	2513.5	2502.4	2508.0	2520.9	2504.3
170°	2530.2	2518.9	2522.7	2535.6	2518.9
172.5°	2541.1	2530.2	2533.8	2546.7	2530.2
175°	2550.2	2537.3	2541.1	2553.9	2535.6
177.5°	2553.9	2541.1	2543.0	2555.9	2539.3
180°	2544.8	2544.8	2544.8	2544.8	2544.8

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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	3.52	4.21	4.65	5.33	6.90	3.08	3.77	4.21	4.89	6.45
	3H	5.18	5.79	6.32	6.92	8.50	4.69	5.30	5.83	6.43	8.01
	4H	5.76	6.35	6.91	7.48	9.06	5.27	5.85	6.41	6.98	8.57
	6H	6.16	6.70	7.31	7.83	9.42	5.66	6.20	6.81	7.33	8.92
	8H	6.26	6.77	7.42	7.92	9.51	5.76	6.27	6.92	7.42	9.00
	12H	6.30	6.79	7.47	7.93	9.54	5.79	6.28	6.96	7.42	9.03
4H	2H	3.96	4.55	5.12	5.68	7.26	3.61	4.20	4.77	5.33	6.91
	3H	5.82	6.31	6.98	7.47	9.06	5.41	5.90	6.57	7.06	8.66
	4H	6.53	6.98	7.70	8.13	9.74	6.11	6.56	7.27	7.70	9.32
	6H	7.04	7.43	8.21	8.60	10.20	6.61	7.00	7.78	8.17	9.77
	8H	7.19	7.55	8.36	8.71	10.33	6.76	7.11	7.92	8.27	9.90
	12H	7.26	7.59	8.44	8.76	10.38	6.81	7.14	7.99	8.31	9.93
8H	4H	6.72	7.08	7.88	8.24	9.86	6.34	6.70	7.51	7.86	9.48
	6H	7.35	7.64	8.53	8.85	10.46	6.96	7.26	8.15	8.46	10.08
	8H	7.57	7.83	8.76	9.01	10.65	7.18	7.44	8.37	8.62	10.25
	12H	7.70	7.92	8.89	9.10	10.77	7.29	7.51	8.48	8.69	10.36
12H	4H	6.69	7.02	7.88	8.19	9.82	6.33	6.65	7.51	7.82	9.45
	6H	7.38	7.63	8.57	8.81	10.45	7.00	7.26	8.20	8.44	10.08
	8H	7.61	7.84	8.81	9.02	10.69	7.23	7.46	8.43	8.64	10.31

END OF REPORT