

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: P902319

Luminaire Tested: DFN2DIP-4P4F0-040D080US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902319
REPORT IS A COMBINATION OF REPORTS P900661 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D080US830-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

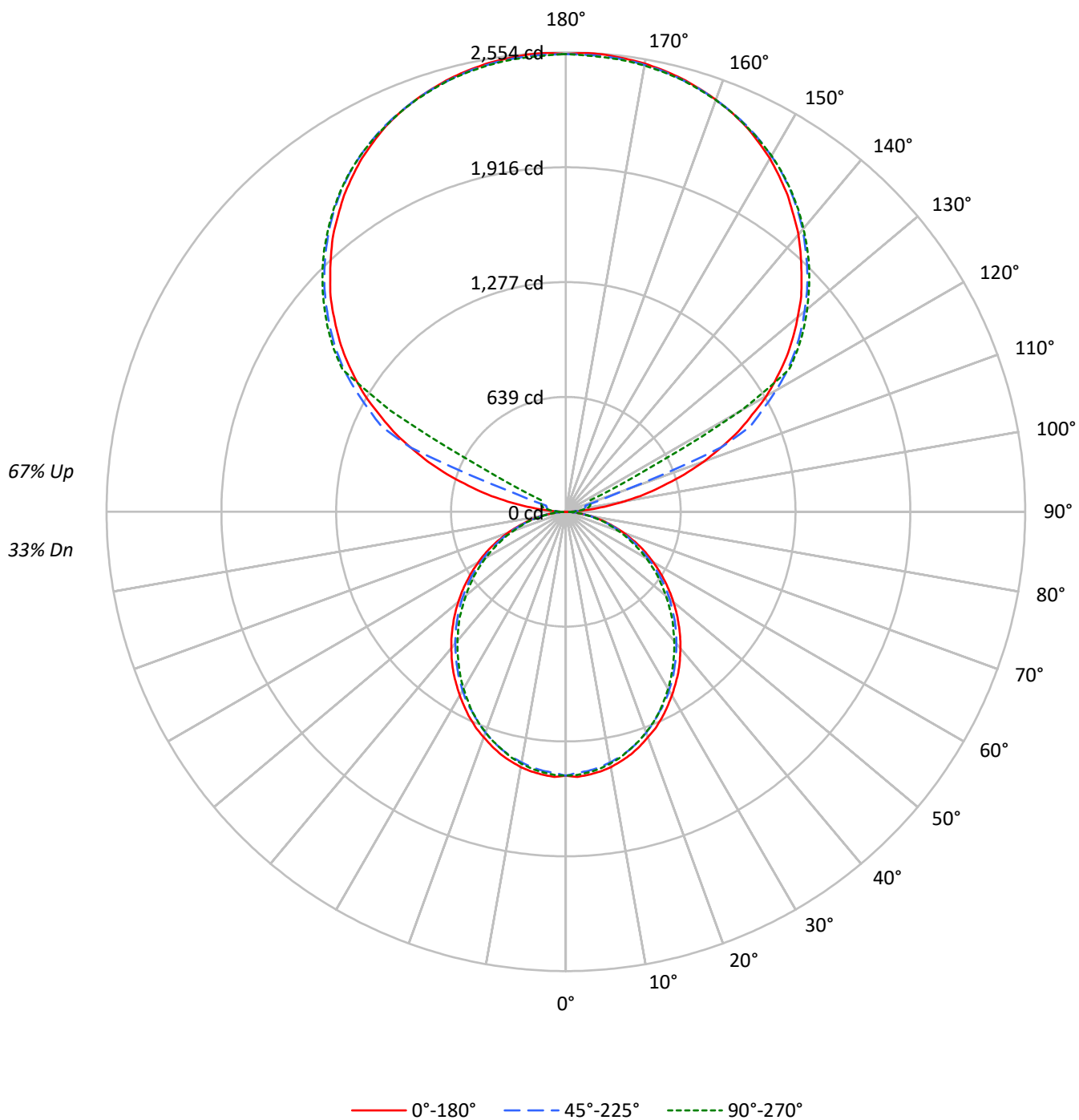
Lumens per Lamp: N/A
Luminaire Lumens: 11197.4 lumens
Efficiency: N/A
Efficacy: 99.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 112.3
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

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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	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	952	952	952
5°	953	939	945
10°	946	926	933
15°	932	911	913
20°	913	891	893
25°	894	865	870
30°	871	842	840
35°	849	815	808
40°	822	787	778
45°	795	759	748
50°	765	730	712
55°	734	696	680
60°	699	656	643
65°	660	615	599
70°	612	564	552
75°	544	504	509
80°	463	427	426
85°	336	293	287

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°	138.1	1.2
10°-20°	388.5	3.5
20°-30°	570.9	5.1
30°-40°	663.1	5.9
40°-50°	662.3	5.9
50°-60°	577.5	5.2
60°-70°	426.9	3.8
70°-80°	241.5	2.2
80°-90°	68.2	0.6
90°-100°	83.9	0.7
100°-110°	312.8	2.8
110°-120°	829.6	7.4
120°-130°	1376.0	12.3
130°-140°	1461.6	13.1
140°-150°	1358.4	12.1
150°-160°	1092.1	9.8
160°-170°	703.7	6.3
170°-180°	242.2	2.2
0°-30°	1097.5	9.8
0°-40°	1760.6	15.7
0°-60°	3000.3	26.8
0°-90°	3736.9	33.4
90°-120°	1226.4	11.0
90°-150°	5422.4	48.4
90°-180°	7460.0	66.6
0°-180°	11197.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	22	37	46	50	10
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°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
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	5.35	6.08	6.43	7.16	8.65	4.90	5.63	5.99	6.72	8.21
	3H	7.00	7.66	8.10	8.75	10.26	6.51	7.16	7.61	8.26	9.77
	4H	7.59	8.21	8.69	9.30	10.82	7.09	7.71	8.20	8.81	10.32
	6H	7.98	8.56	9.10	9.65	11.18	7.48	8.06	8.60	9.15	10.68
	8H	8.09	8.63	9.21	9.75	11.27	7.59	8.13	8.71	9.24	10.76
	12H	8.13	8.65	9.26	9.76	11.30	7.62	8.14	8.75	9.25	10.79
4H	2H	5.79	6.41	6.91	7.51	9.02	5.44	6.06	6.55	7.15	8.67
	3H	7.65	8.17	8.77	9.29	10.82	7.24	7.76	8.37	8.88	10.41
	4H	8.37	8.84	9.49	9.95	11.50	7.94	8.42	9.07	9.53	11.08
	6H	8.88	9.29	10.01	10.42	11.96	8.45	8.85	9.58	9.99	11.53
	8H	9.03	9.41	10.16	10.54	12.09	8.59	8.97	9.72	10.10	11.65
	12H	9.10	9.44	10.25	10.58	12.14	8.65	8.99	9.80	10.13	11.69
8H	4H	8.55	8.93	9.68	10.06	11.61	8.18	8.56	9.31	9.68	11.24
	6H	9.18	9.50	10.34	10.67	12.22	8.80	9.12	9.95	10.28	11.84
	8H	9.41	9.68	10.57	10.83	12.40	9.02	9.29	10.17	10.44	12.01
	12H	9.54	9.78	10.70	10.92	12.53	9.13	9.37	10.29	10.51	12.12
12H	4H	8.53	8.88	9.68	10.02	11.58	8.16	8.51	9.31	9.65	11.21
	6H	9.21	9.49	10.37	10.64	12.21	8.84	9.12	10.00	10.27	11.84
	8H	9.45	9.70	10.62	10.84	12.45	9.07	9.32	10.24	10.46	12.07

END OF REPORT