

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: P923061

Luminaire Tested: DFN2DIP-SQ4F0-060D140US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923061
REPORT IS A COMBINATION OF REPORTS P901705 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D140US940-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

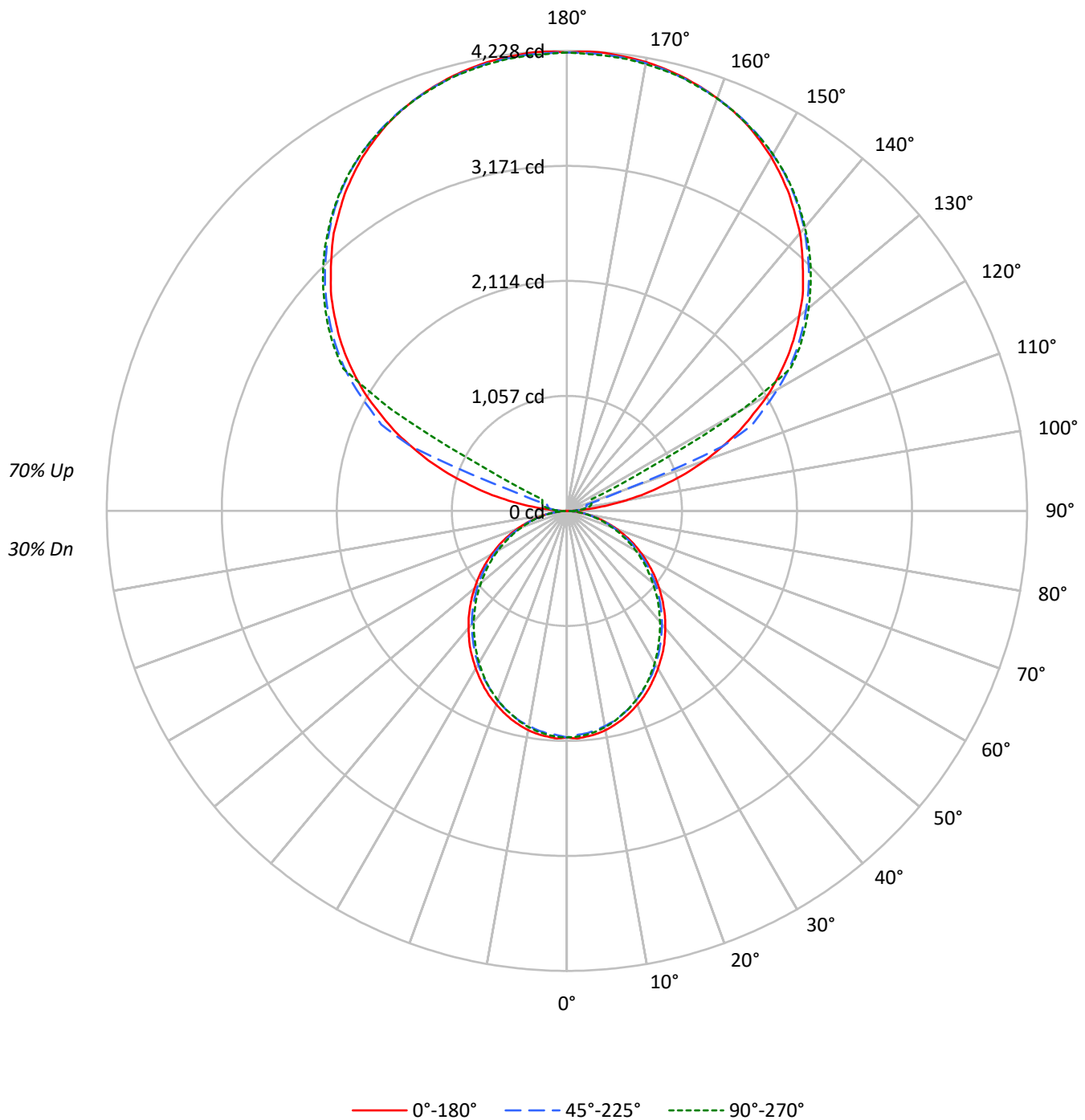
Lumens per Lamp: N/A
Luminaire Lumens: 17655.9 lumens
Efficiency: N/A
Efficacy: 113.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 155.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	92	92	92	92	72	72	72	54	54	54	38	38	38
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	33	33	32
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	29	28	27
3	77	68	61	56	69	62	56	51	49	45	41	37	34	32	26	24	23
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17
6	60	48	40	35	53	43	37	32	35	30	26	27	23	20	19	17	15
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11
10	44	32	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1461	1461	1461
5°	1463	1441	1451
10°	1451	1422	1431
15°	1430	1399	1401
20°	1401	1366	1370
25°	1372	1328	1334
30°	1336	1292	1288
35°	1302	1249	1240
40°	1260	1207	1194
45°	1219	1164	1147
50°	1173	1119	1092
55°	1125	1067	1042
60°	1071	1005	985
65°	1012	941	917
70°	936	863	844
75°	832	770	778
80°	707	651	650
85°	510	445	437

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2259 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	1.1
10°-20°	551.3	3.1
20°-30°	810.2	4.6
30°-40°	941.0	5.3
40°-50°	939.8	5.3
50°-60°	819.5	4.6
60°-70°	605.8	3.4
70°-80°	342.7	1.9
80°-90°	97.9	0.6
90°-100°	138.9	0.8
100°-110°	517.9	2.9
110°-120°	1373.5	7.8
120°-130°	2278.1	12.9
130°-140°	2419.9	13.7
140°-150°	2249.0	12.7
150°-160°	1808.2	10.2
160°-170°	1165.1	6.6
170°-180°	401.0	2.3
0°-30°	1557.4	8.8
0°-40°	2498.4	14.2
0°-60°	4257.8	24.1
0°-90°	5304.2	30.0
90°-120°	2030.4	11.5
90°-150°	8977.4	50.8
90°-180°	12352.0	70.0
0°-180°	17655.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	3	37	61	76	82	16
95°	198	97	119	134	131	235
105°	927	1018	186	219	232	990
115°	1753	1805	1881	470	250	1726
125°	2478	2518	2576	2598	2607	2210
135°	3067	3116	3143	3174	3168	2369
145°	3558	3555	3606	3628	3613	2225
155°	3917	3890	3927	3945	3921	1805
165°	4128	4110	4119	4140	4119	1166
175°	4222	4201	4207	4228	4198	402
180°	4213	4213	4213	4213	4213	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	2.9	36.6	60.8	76.4	82.2
92.5°	76.4	64.1	73.1	79.3	82.2
95°	198.0	97.4	118.8	134.3	131.1
97.5°	356.6	106.8	155.3	164.7	167.6
100°	539.8	122.0	173.8	198.0	204.2
102.5°	740.7	734.9	179.9	213.2	222.7
105°	926.8	1018.3	186.1	219.4	231.7
107.5°	1143.3	1219.2	192.3	225.5	237.8
110°	1350.7	1414.4	533.6	228.8	240.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1545.8	1600.4	1548.7	234.6	244.0
115°	1752.9	1804.6	1881.1	469.6	250.1
117.5°	1932.8	1993.6	2045.8	1609.5	810.9
120°	2134.1	2179.7	2234.7	2271.3	1859.7
122.5°	2304.6	2353.5	2414.7	2432.8	2436.1
125°	2478.4	2518.2	2576.2	2597.5	2606.6
127.5°	2637.0	2679.7	2725.6	2756.0	2759.0
130°	2786.4	2835.4	2868.6	2902.3	2899.4
132.5°	2938.9	2978.7	3012.0	3039.5	3036.6
135°	3067.0	3115.9	3143.0	3173.8	3167.6
137.5°	3201.0	3237.5	3268.3	3298.7	3289.7
140°	3332.1	3356.7	3389.9	3417.5	3402.2
142.5°	3442.1	3463.4	3502.9	3527.2	3511.9
145°	3557.9	3554.6	3606.4	3627.8	3612.6
147.5°	3658.2	3649.1	3701.0	3716.1	3704.2
150°	3756.0	3734.6	3783.4	3801.5	3786.4
152.5°	3838.1	3813.8	3859.5	3878.0	3856.6
155°	3917.4	3890.3	3926.8	3944.9	3920.7
157.5°	3981.5	3957.2	3984.8	4006.1	3981.5
160°	4036.5	4018.0	4036.5	4054.6	4033.3
162.5°	4085.0	4066.9	4082.2	4103.5	4076.0
165°	4127.7	4109.6	4118.7	4140.0	4118.7
167.5°	4161.4	4143.0	4152.3	4173.7	4146.2
170°	4188.9	4170.4	4176.6	4198.0	4170.4
172.5°	4207.0	4188.9	4195.1	4216.5	4188.9
175°	4222.2	4200.8	4207.0	4228.4	4198.0
177.5°	4228.4	4207.0	4210.3	4231.6	4204.1
180°	4213.2	4213.2	4213.2	4213.2	4213.2

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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	6.39	7.10	7.51	8.21	9.74	5.95	6.66	7.06	7.76	9.29
	3H	8.05	8.68	9.17	9.79	11.34	7.56	8.19	8.68	9.30	10.85
	4H	8.63	9.23	9.76	10.35	11.90	8.14	8.74	9.27	9.85	11.40
	6H	9.02	9.58	10.16	10.70	12.26	8.52	9.08	9.66	10.20	11.76
	8H	9.13	9.65	10.27	10.79	12.34	8.62	9.15	9.77	10.28	11.84
	12H	9.17	9.67	10.32	10.80	12.38	8.66	9.16	9.81	10.29	11.87
4H	2H	6.84	7.44	7.97	8.55	10.10	6.48	7.08	7.62	8.20	9.75
	3H	8.69	9.19	9.84	10.34	11.90	8.28	8.79	9.43	9.93	11.49
	4H	9.40	9.86	10.55	11.00	12.58	8.98	9.44	10.13	10.57	12.16
	6H	9.91	10.31	11.07	11.46	13.04	9.48	9.88	10.63	11.03	12.61
	8H	10.06	10.43	11.21	11.58	13.17	9.62	9.99	10.78	11.14	12.73
	12H	10.13	10.46	11.30	11.62	13.22	9.68	10.01	10.85	11.17	12.77
8H	4H	9.59	9.96	10.74	11.10	12.69	9.21	9.58	10.36	10.73	12.32
	6H	10.22	10.52	11.39	11.71	13.30	9.83	10.14	11.01	11.33	12.91
	8H	10.44	10.71	11.62	11.87	13.48	10.05	10.31	11.22	11.48	13.09
	12H	10.57	10.80	11.75	11.96	13.61	10.16	10.39	11.34	11.55	13.20
12H	4H	9.57	9.90	10.73	11.06	12.65	9.20	9.53	10.37	10.69	12.29
	6H	10.25	10.51	11.42	11.68	13.29	9.87	10.14	11.05	11.31	12.92
	8H	10.48	10.72	11.67	11.88	13.52	10.10	10.34	11.29	11.50	13.14

END OF REPORT