

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: P917152

Luminaire Tested: DFN2DIP-SQ2F0-040D080US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917152
REPORT IS A COMBINATION OF REPORTS P899833 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-040D080US930-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

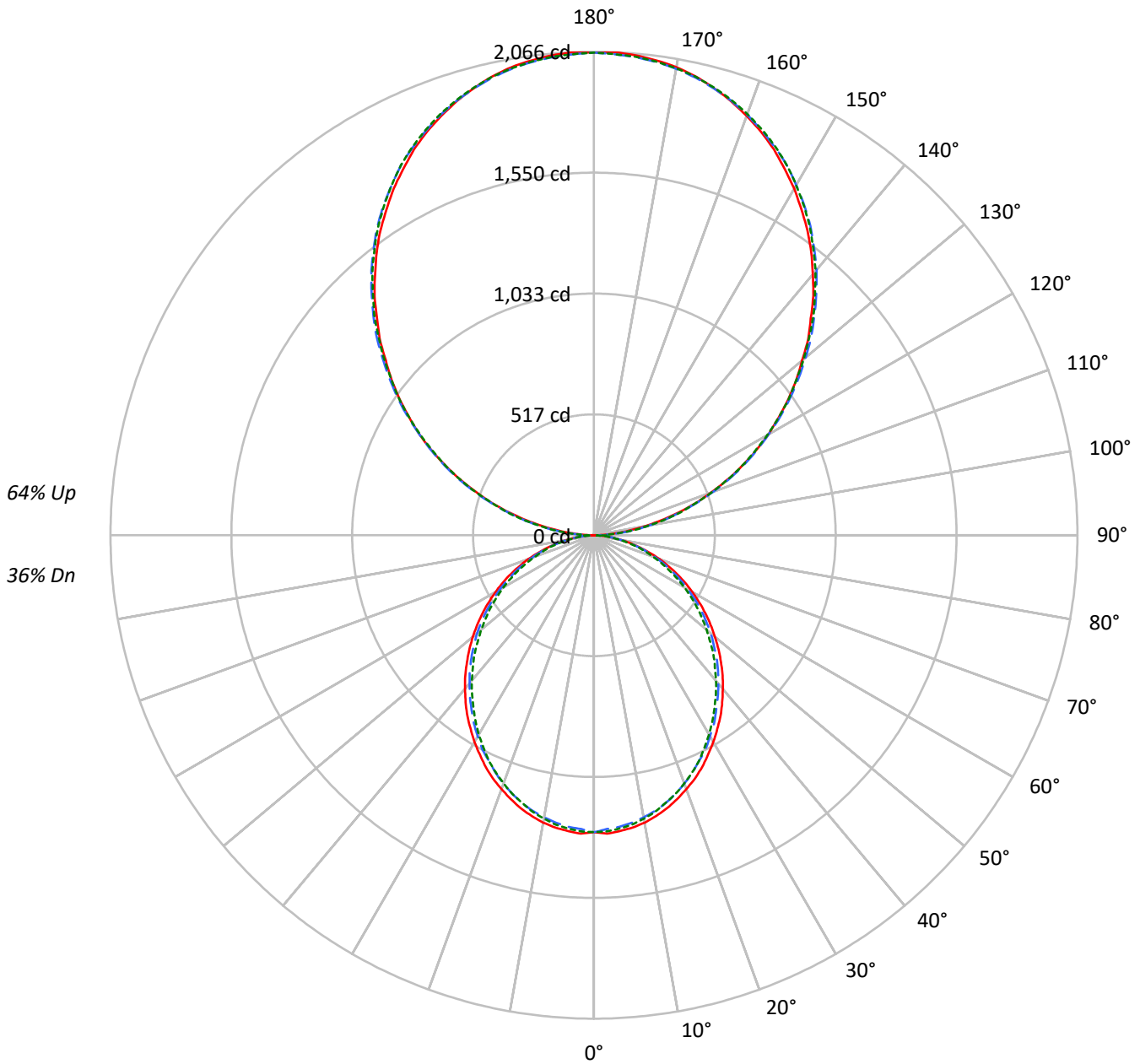
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9000.9 lumens
Efficiency: N/A
Efficacy: 91.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 98.7
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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



— 0°-180° - - 45°-225° - - - 90°-270°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36	36	36	36
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36	30	30	30	30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31	25	25	25	25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21	21	21	21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22	18	18	18	18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20	16	16	16	16
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17	14	14	14	14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12	12	12	12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11	11	11	11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10	10	10	10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11	9	9	9	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2790	2790	2790
5°	2790	2745	2766
10°	2763	2702	2725
15°	2717	2652	2662
20°	2657	2584	2599
25°	2598	2504	2525
30°	2524	2429	2434
35°	2454	2342	2337
40°	2369	2254	2244
45°	2283	2165	2149
50°	2190	2071	2040
55°	2092	1963	1938
60°	1981	1836	1821
65°	1858	1703	1684
70°	1703	1541	1536
75°	1490	1347	1393
80°	1231	1099	1132
85°	832	694	710

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2875 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	1.3
10°-20°	336.0	3.7
20°-30°	493.8	5.5
30°-40°	573.6	6.4
40°-50°	572.9	6.4
50°-60°	499.5	5.5
60°-70°	369.3	4.1
70°-80°	208.9	2.3
80°-90°	61.0	0.7
90°-100°	127.6	1.4
100°-110°	405.6	4.5
110°-120°	694.1	7.7
120°-130°	912.8	10.1
130°-140°	1024.6	11.4
140°-150°	1004.7	11.2
150°-160°	842.8	9.4
160°-170°	558.9	6.2
170°-180°	195.4	2.2
0°-30°	949.3	10.5
0°-40°	1522.9	16.9
0°-60°	2595.3	28.8
0°-90°	3234.4	35.9
90°-120°	1227.3	13.6
90°-150°	4169.4	46.3
90°-180°	5766.0	64.1
0°-180°	9000.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
90°	2	22	61	57	59	9
95°	91	108	111	111	108	101
105°	374	379	383	386	386	395
115°	696	706	703	702	696	689
125°	1013	1029	1024	1018	1016	905
135°	1310	1330	1333	1332	1326	1013
145°	1591	1603	1613	1615	1608	994
155°	1819	1824	1830	1838	1833	837
165°	1979	1977	1977	1989	1981	558
175°	2059	2054	2050	2063	2052	196
180°	2063	2063	2063	2063	2063	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
90°	1.9	22.4	61.0	57.2	59.1
92.5°	38.6	52.3	54.1	55.9	55.9
95°	90.8	108.2	111.3	111.3	108.2
97.5°	151.2	167.3	174.1	174.1	174.1
100°	220.8	235.1	240.0	240.0	238.1
102.5°	294.2	304.8	311.5	313.4	311.5
105°	374.4	379.4	383.1	386.2	386.2
107.5°	454.0	461.5	461.5	462.7	454.0
110°	531.1	541.0	541.0	541.0	536.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	614.4	625.0	623.1	618.2	614.4
115°	696.5	706.5	703.4	701.5	696.5
117.5°	778.0	791.7	782.9	778.0	773.0
120°	860.1	873.8	860.1	860.1	854.4
122.5°	934.7	952.1	943.4	938.4	934.7
125°	1013.0	1028.6	1023.6	1018.0	1016.2
127.5°	1089.6	1108.8	1102.0	1094.5	1089.6
130°	1161.1	1183.4	1180.3	1176.6	1169.8
132.5°	1241.3	1258.7	1260.0	1251.2	1246.3
135°	1310.3	1329.6	1333.3	1331.5	1326.5
137.5°	1387.4	1403.0	1406.1	1404.8	1397.3
140°	1455.2	1470.7	1479.4	1479.4	1472.6
142.5°	1524.9	1540.4	1545.4	1547.3	1540.4
145°	1590.8	1603.2	1613.1	1615.0	1608.2
147.5°	1649.8	1665.4	1672.8	1676.0	1669.2
150°	1710.8	1721.3	1728.2	1733.8	1728.2
152.5°	1764.9	1775.5	1784.2	1791.0	1784.2
155°	1819.0	1824.0	1829.6	1838.3	1832.7
157.5°	1865.6	1869.4	1872.5	1884.9	1876.2
160°	1907.3	1911.1	1912.9	1923.5	1916.0
162.5°	1945.9	1945.9	1947.7	1959.6	1950.8
165°	1978.8	1976.9	1976.9	1989.4	1980.7
167.5°	2008.7	2003.1	2003.1	2015.5	2006.8
170°	2031.1	2026.1	2024.2	2036.7	2026.1
172.5°	2046.6	2041.7	2039.8	2052.2	2041.7
175°	2059.0	2054.1	2050.3	2062.8	2052.2
177.5°	2065.9	2060.9	2057.2	2067.8	2057.2
180°	2062.8	2062.8	2062.8	2062.8	2062.8



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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	9.26	10.01	10.33	11.08	12.54	8.81	9.56	9.88	10.63	12.09
	3H	10.89	11.56	11.97	12.64	14.12	10.40	11.07	11.48	12.15	13.63
	4H	11.46	12.10	12.55	13.18	14.66	10.97	11.60	12.06	12.68	14.17
	6H	11.84	12.42	12.94	13.51	15.00	11.34	11.92	12.44	13.01	14.50
	8H	11.93	12.49	13.04	13.59	15.08	11.43	11.99	12.53	13.09	14.58
	12H	11.97	12.50	13.08	13.59	15.11	11.46	11.99	12.57	13.08	14.60
4H	2H	9.69	10.33	10.79	11.41	12.89	9.34	9.97	10.43	11.06	12.54
	3H	11.53	12.06	12.63	13.17	14.66	11.12	11.65	12.22	12.76	14.25
	4H	12.22	12.71	13.33	13.81	15.32	11.80	12.28	12.90	13.38	14.90
	6H	12.71	13.13	13.83	14.25	15.76	12.28	12.70	13.39	13.82	15.33
	8H	12.85	13.24	13.96	14.35	15.88	12.41	12.80	13.53	13.91	15.44
	12H	12.91	13.26	14.04	14.39	15.92	12.46	12.81	13.59	13.94	15.47
8H	4H	12.40	12.79	13.51	13.90	15.43	12.02	12.41	13.13	13.52	15.05
	6H	13.00	13.32	14.14	14.48	16.00	12.61	12.94	13.75	14.09	15.61
	8H	13.21	13.49	14.35	14.62	16.17	12.81	13.09	13.96	14.23	15.77
	12H	13.32	13.57	14.47	14.70	16.28	12.91	13.16	14.06	14.29	15.87
12H	4H	12.37	12.73	13.51	13.85	15.38	12.00	12.36	13.14	13.48	15.01
	6H	13.02	13.31	14.17	14.44	15.98	12.65	12.93	13.79	14.07	15.61
	8H	13.24	13.49	14.39	14.62	16.20	12.86	13.11	14.01	14.24	15.82