

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: P918198

Luminaire Tested: DFN2DIP-TR4F0-040D080US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918198
REPORT IS A COMBINATION OF REPORTS P900441 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D080US930-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

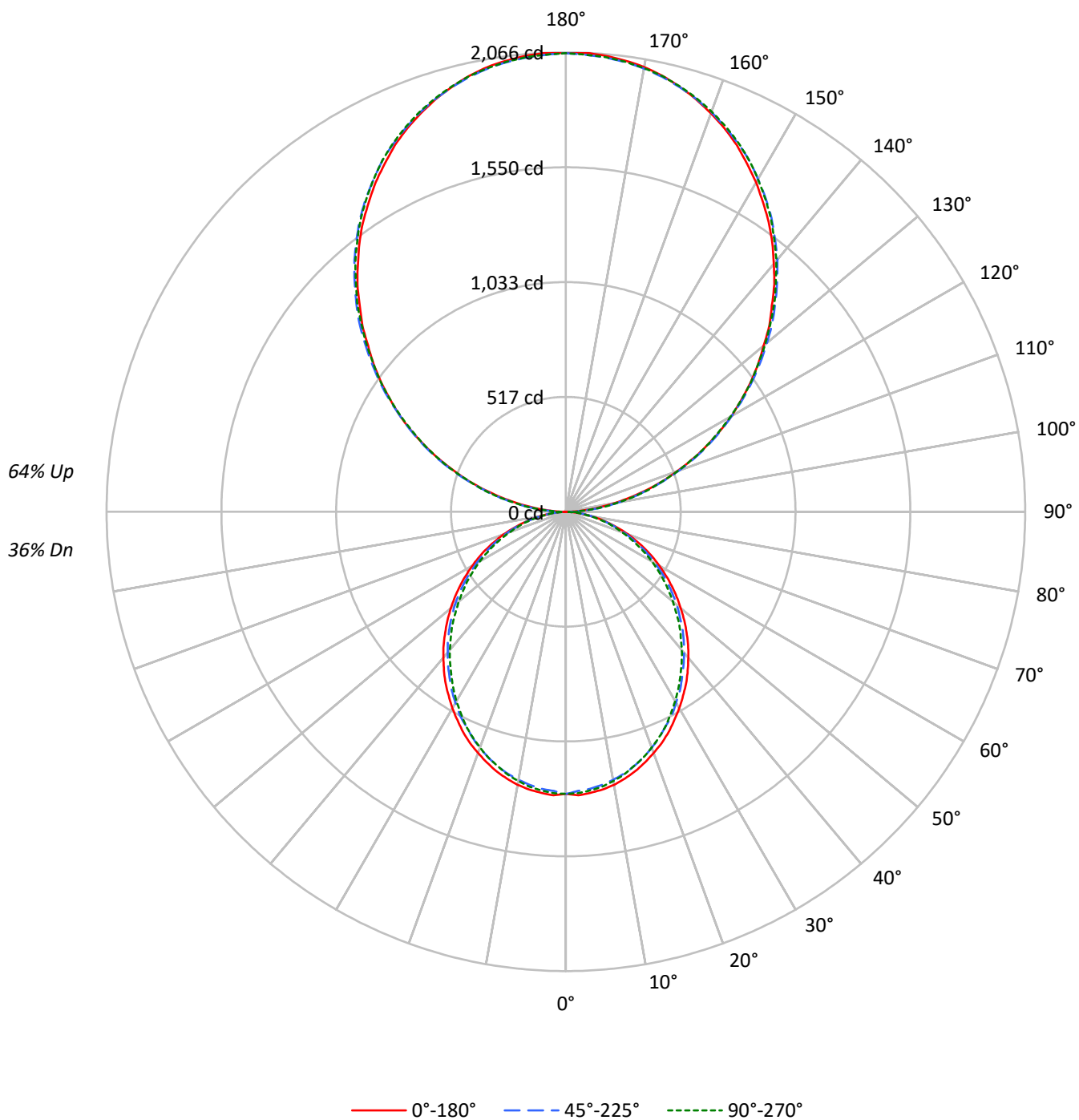
Lumens per Lamp: N/A
Luminaire Lumens: 9000.9 lumens
Efficiency: N/A
Efficacy: 98.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 91.1
Input Voltage (V):
Input Current (Ain): 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



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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1008	1008	1008
5°	1010	994	1001
10°	1002	981	987
15°	987	964	966
20°	967	942	944
25°	947	915	919
30°	922	890	887
35°	899	861	854
40°	870	831	821
45°	841	801	789
50°	809	770	751
55°	777	734	716
60°	739	691	675
65°	699	646	628
70°	647	592	577
75°	575	527	530
80°	489	444	441
85°	354	301	292

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1608 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	5.83	6.58	6.90	7.65	9.11	5.40	6.15	6.47	7.22	8.68
	3H	7.48	8.15	8.56	9.23	10.71	7.01	7.68	8.09	8.76	10.24
	4H	8.06	8.70	9.15	9.78	11.26	7.59	8.23	8.68	9.31	10.79
	6H	8.46	9.04	9.56	10.13	11.62	7.98	8.57	9.08	9.65	11.15
	8H	8.56	9.12	9.66	10.22	11.71	8.08	8.64	9.19	9.74	11.23
	12H	8.60	9.13	9.71	10.23	11.74	8.12	8.65	9.23	9.75	11.26
4H	2H	6.28	6.91	7.38	8.00	9.48	5.93	6.57	7.03	7.65	9.13
	3H	8.13	8.66	9.24	9.77	11.27	7.74	8.27	8.84	9.38	10.88
	4H	8.84	9.33	9.95	10.43	11.95	8.44	8.92	9.55	10.02	11.54
	6H	9.35	9.77	10.47	10.89	12.40	8.94	9.36	10.06	10.48	11.99
	8H	9.50	9.89	10.61	11.00	12.53	9.09	9.48	10.20	10.59	12.12
	12H	9.57	9.92	10.70	11.05	12.58	9.14	9.50	10.28	10.62	12.15
8H	4H	9.03	9.42	10.15	10.53	12.06	8.67	9.06	9.79	10.17	11.70
	6H	9.66	9.98	10.79	11.13	12.66	9.29	9.62	10.43	10.77	12.29
	8H	9.88	10.16	11.02	11.29	12.84	9.51	9.79	10.65	10.93	12.47
	12H	10.00	10.25	11.15	11.38	12.96	9.62	9.87	10.77	11.00	12.58
12H	4H	9.01	9.36	10.14	10.49	12.02	8.66	9.01	9.79	10.14	11.67
	6H	9.69	9.97	10.83	11.10	12.65	9.33	9.62	10.48	10.75	12.29
	8H	9.92	10.17	11.07	11.30	12.88	9.57	9.81	10.71	10.95	12.52