

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: P910522

Luminaire Tested: DFN2DIP-4P4F0-050D070US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910522
REPORT IS A COMBINATION OF REPORTS P899131 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D070US850-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

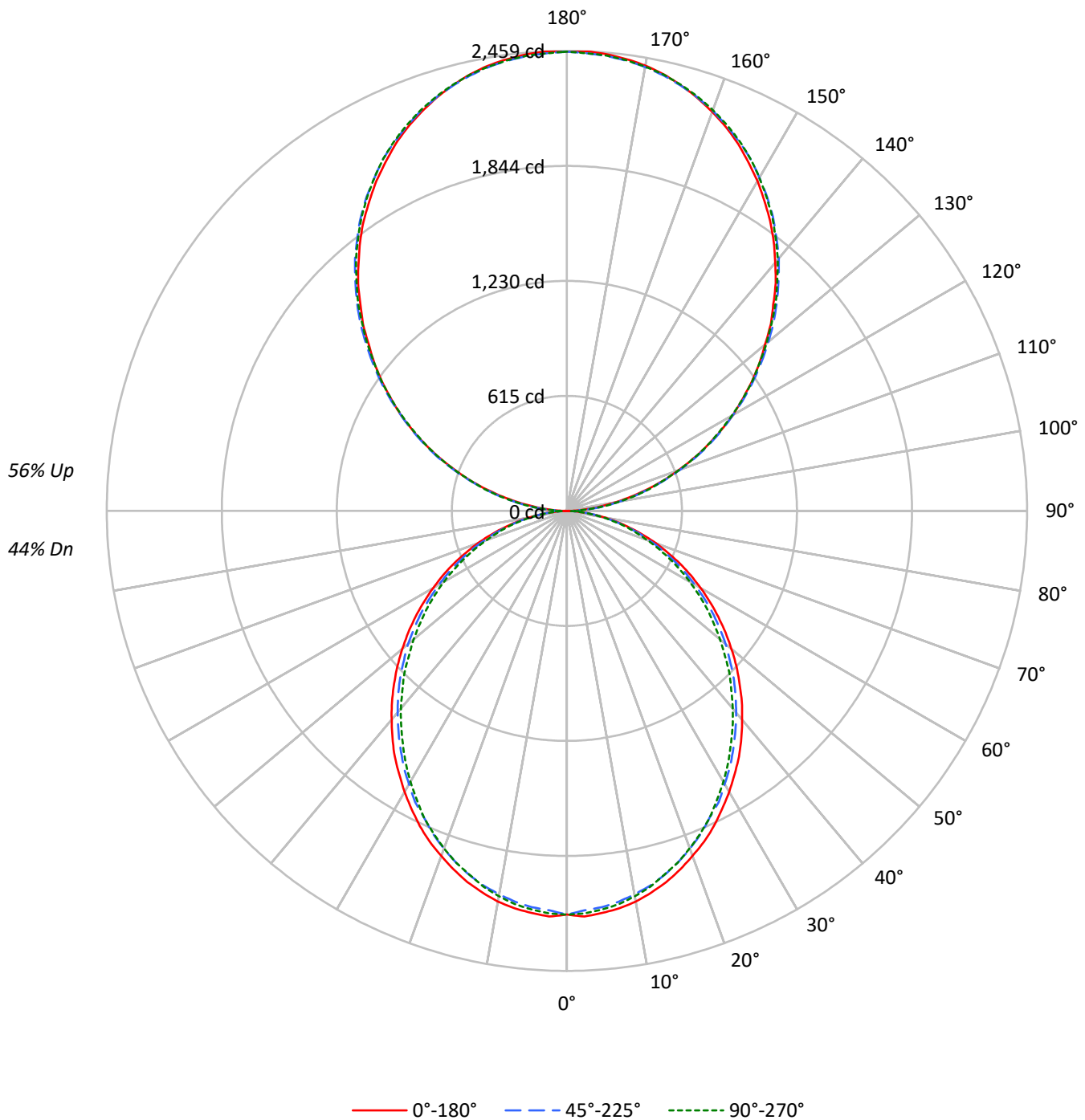
Lumens per Lamp: N/A
Luminaire Lumens: 12359.9 lumens
Efficiency: N/A
Efficacy: 111.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	106	106	106	106	97	97	97	97		80	80	80		65	65	65		51	51	51
1	97	92	88	85	88	85	81	78		70	68	66		57	56	54		45	44	43
2	88	81	74	69	80	74	69	64		62	58	55		50	48	45		40	38	36
3	80	71	64	58	73	65	59	54		54	50	46		44	41	38		35	33	31
4	73	63	55	49	67	58	51	45		48	43	39		40	36	33		31	29	27
5	67	56	48	42	61	51	44	39		43	38	34		35	31	28		28	25	23
6	62	50	42	36	57	46	39	34		39	33	29		32	28	25		26	23	20
7	57	45	37	32	52	42	35	30		35	30	26		29	25	22		23	20	18
8	53	41	33	28	49	38	31	26		32	27	23		27	23	20		22	19	16
9	49	37	30	25	45	35	28	23		29	24	20		24	20	18		20	17	15
10	46	34	27	22	42	32	25	21		27	22	18		23	19	16		18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1400	1400	1400
5°	1402	1381	1390
10°	1391	1363	1372
15°	1370	1341	1343
20°	1343	1310	1313
25°	1316	1273	1279
30°	1281	1239	1235
35°	1249	1198	1189
40°	1209	1157	1145
45°	1169	1117	1100
50°	1125	1074	1048
55°	1079	1024	1000
60°	1028	965	945
65°	971	904	880
70°	900	830	811
75°	800	741	748
80°	681	628	626
85°	493	432	422

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1858 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	1.6
10°-20°	571.4	4.6
20°-30°	839.7	6.8
30°-40°	975.2	7.9
40°-50°	974.0	7.9
50°-60°	849.3	6.9
60°-70°	627.9	5.1
70°-80°	355.2	2.9
80°-90°	100.7	0.8
90°-100°	151.9	1.2
100°-110°	482.7	3.9
110°-120°	826.1	6.7
120°-130°	1086.4	8.8
130°-140°	1219.5	9.9
140°-150°	1195.8	9.7
150°-160°	1003.1	8.1
160°-170°	665.3	5.4
170°-180°	232.5	1.9
0°-30°	1614.1	13.1
0°-40°	2589.4	20.9
0°-60°	4412.7	35.7
0°-90°	5496.5	44.5
90°-120°	1460.7	11.8
90°-150°	4962.4	40.1
90°-180°	6863.0	55.5
0°-180°	12359.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2126	2143	2139	205
15°	2054	2042	2014	2023	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	2	27	72	68	70	12
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.6	2157.6	2157.6	2157.6	2157.6
2.5°	2170.1	2159.8	2136.9	2157.6	2153.7
5°	2157.6	2149.5	2126.5	2143.0	2139.2
7.5°	2143.0	2130.7	2107.9	2124.6	2120.4
10°	2120.4	2105.9	2081.0	2097.5	2091.4
12.5°	2089.1	2076.8	2052.0	2062.3	2058.1
15°	2053.9	2041.6	2014.5	2022.9	2012.5
17.5°	2010.3	1998.0	1970.9	1981.2	1970.9
20°	1962.6	1950.3	1921.2	1927.3	1919.2
22.5°	1915.0	1896.3	1869.2	1869.2	1865.0
25°	1858.9	1842.4	1807.1	1811.1	1807.1
27.5°	1796.6	1782.1	1755.2	1749.0	1738.7
30°	1734.5	1717.8	1686.8	1680.6	1672.3
32.5°	1668.0	1655.7	1622.5	1609.9	1601.6
35°	1603.7	1583.1	1549.8	1537.3	1527.0
37.5°	1531.1	1512.5	1479.2	1464.7	1454.3
40°	1456.6	1439.8	1406.5	1388.0	1379.7
42.5°	1383.9	1367.2	1334.1	1313.2	1300.9
45°	1305.1	1290.5	1259.3	1236.6	1228.2
47.5°	1228.2	1213.7	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.8	1068.4
52.5°	1068.4	1053.9	1027.0	1004.2	989.7
55°	987.7	975.1	950.2	925.3	915.0
57.5°	906.6	896.3	869.2	844.4	836.0
60°	825.7	817.6	788.5	765.5	759.4
62.5°	746.9	732.4	711.6	690.9	682.6
65°	666.1	653.5	632.8	614.2	603.7
67.5°	583.1	572.6	554.1	539.5	531.1
70°	506.3	497.9	479.2	464.7	456.6
72.5°	427.5	419.1	408.8	394.2	388.0
75°	348.4	344.5	333.9	321.6	325.8
77.5°	278.0	269.6	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.1	190.9
82.5°	141.1	141.1	139.1	130.8	130.8
85°	84.9	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.8	20.7
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1

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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	7.92	8.74	8.93	9.75	11.10	7.48	8.29	8.48	9.31	10.66
	3H	9.59	10.32	10.60	11.34	12.71	9.10	9.83	10.11	10.85	12.22
	4H	10.18	10.87	11.20	11.89	13.27	9.68	10.37	10.71	11.40	12.77
	6H	10.58	11.21	11.61	12.24	13.63	10.08	10.71	11.11	11.74	13.13
	8H	10.68	11.29	11.72	12.34	13.72	10.18	10.79	11.22	11.83	13.22
	12H	10.73	11.31	11.78	12.35	13.76	10.22	10.80	11.27	11.84	13.25
4H	2H	8.38	9.07	9.41	10.10	11.47	8.03	8.72	9.06	9.74	11.12
	3H	10.25	10.82	11.29	11.88	13.27	9.84	10.42	10.88	11.47	12.86
	4H	10.96	11.49	12.01	12.54	13.95	10.54	11.07	11.59	12.11	13.53
	6H	11.48	11.94	12.54	13.01	14.41	11.05	11.50	12.11	12.57	13.98
	8H	11.63	12.06	12.69	13.12	14.54	11.20	11.62	12.26	12.68	14.11
	12H	11.71	12.09	12.78	13.17	14.59	11.26	11.64	12.33	12.72	14.15
8H	4H	11.16	11.58	12.22	12.64	14.07	10.78	11.21	11.84	12.27	13.69
	6H	11.79	12.14	12.88	13.25	14.67	11.41	11.76	12.49	12.86	14.28
	8H	12.02	12.33	13.11	13.41	14.85	11.63	11.93	12.71	13.02	14.46
	12H	12.15	12.42	13.24	13.50	14.98	11.74	12.01	12.83	13.09	14.57
12H	4H	11.14	11.53	12.22	12.60	14.03	10.77	11.16	11.85	12.23	13.66
	6H	11.82	12.13	12.91	13.22	14.66	11.45	11.76	12.54	12.85	14.29
	8H	12.07	12.34	13.16	13.42	14.90	11.69	11.96	12.78	13.04	14.52