

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: P917842

Luminaire Tested: DFN2DIP-SQ4F0-140D090US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917842
REPORT IS A COMBINATION OF REPORTS P900128 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US930-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

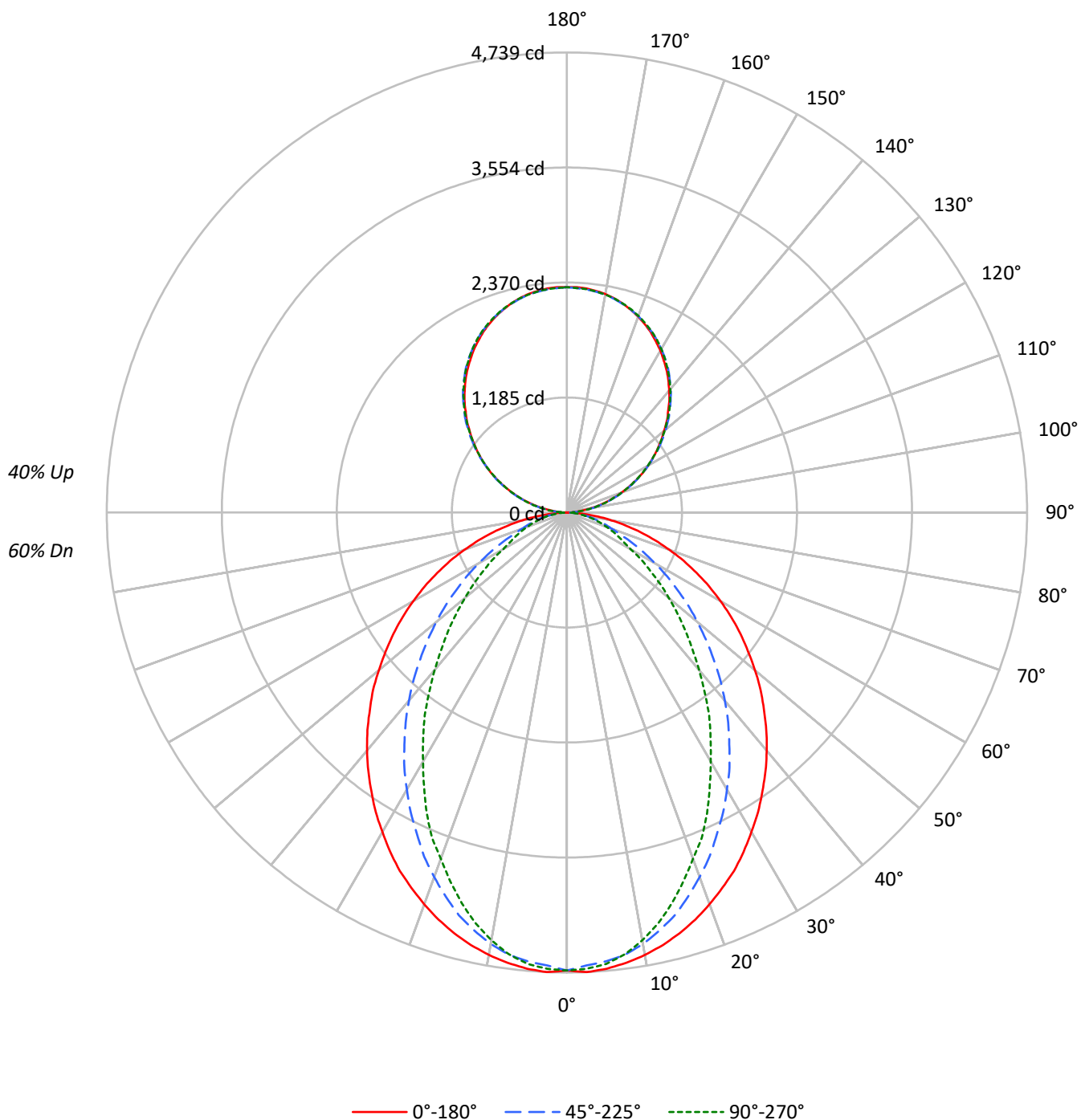
Lumens per Lamp: N/A
Luminaire Lumens: 16195.8 lumens
Efficiency: N/A
Efficacy: 76.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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
RCR																	
0	110	110	110	110	102	102	102	102	89	89	89		77	77	77		65
1	101	96	93	89	94	90	87	84	79	76	74		68	67	65		59
2	92	85	79	74	86	80	74	70	70	66	62		61	58	55		52
3	84	75	68	62	79	71	64	59	62	57	53		54	50	47		47
4	78	67	59	53	72	63	56	51	56	50	46		49	45	41		42
5	71	60	52	46	67	57	49	44	50	44	40		44	40	36		38
6	66	54	46	40	62	51	44	39	45	40	35		40	35	32		35
7	61	49	41	36	57	46	39	34	41	36	31		37	32	29		32
8	57	45	37	32	53	42	35	31	38	32	28		34	29	26		30
9	53	41	34	29	50	39	32	28	35	29	25		31	27	23		28
10	50	38	31	26	47	36	29	25	32	27	23		29	24	21		26

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3310	3310	3310
5°	3315	3258	3279
10°	3283	3195	3174
15°	3237	3090	3009
20°	3177	2945	2808
25°	3116	2782	2613
30°	3034	2616	2366
35°	2953	2436	2148
40°	2871	2251	1899
45°	2776	2045	1673
50°	2677	1836	1452
55°	2575	1614	1240
60°	2456	1381	1021
65°	2319	1145	920
70°	2153	924	835
75°	1944	816	761
80°	1642	687	664
85°	1143	462	505

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2776 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	442.1	2.7
10°-20°	1213.7	7.5
20°-30°	1704.0	10.5
30°-40°	1857.5	11.5
40°-50°	1707.2	10.5
50°-60°	1340.8	8.3
60°-70°	872.7	5.4
70°-80°	449.2	2.8
80°-90°	121.3	0.7
90°-100°	143.6	0.9
100°-110°	456.3	2.8
110°-120°	780.8	4.8
120°-130°	1026.9	6.3
130°-140°	1152.6	7.1
140°-150°	1130.3	7.0
150°-160°	948.2	5.9
160°-170°	628.8	3.9
170°-180°	219.8	1.4
0°-30°	3359.9	20.7
0°-40°	5217.4	32.2
0°-60°	8265.4	51.0
0°-90°	9708.6	59.9
90°-120°	1380.7	8.5
90°-150°	4690.5	29.0
90°-180°	6487.0	40.1
0°-180°	16195.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4718	4718	4718	4718	4718	
5°	4718	4696	4640	4679	4666	447
15°	4487	4440	4295	4214	4171	1264
25°	4073	3936	3654	3480	3415	1873
35°	3510	3292	2916	2647	2553	2197
45°	2869	2583	2135	1831	1729	2216
55°	2181	1848	1387	1132	1050	1949
65°	1473	1127	743	598	585	1460
75°	785	486	342	312	308	831
85°	183	94	81	81	81	211
90°	2	25	69	64	66	16
95°	102	122	125	125	122	114
105°	421	427	431	434	434	444
115°	784	795	791	789	784	775
125°	1140	1157	1152	1145	1143	1018
135°	1474	1496	1500	1498	1492	1139
145°	1790	1804	1815	1817	1809	1118
155°	2046	2052	2058	2068	2062	942
165°	2226	2224	2224	2238	2228	628
175°	2316	2311	2307	2321	2309	220
180°	2321	2321	2321	2321	2321	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4717.5	4717.5	4717.5	4717.5	4717.5
2.5°	4738.8	4717.5	4670.4	4713.4	4704.8
5°	4717.5	4696.2	4640.4	4679.0	4666.3
7.5°	4679.0	4653.6	4593.8	4610.6	4589.3
10°	4627.8	4597.9	4512.8	4499.5	4474.2
12.5°	4563.9	4525.4	4409.9	4384.5	4337.5
15°	4486.9	4439.8	4294.8	4213.8	4171.2
17.5°	4397.2	4328.8	4149.5	4055.7	3987.3
20°	4294.8	4209.2	3995.9	3889.5	3795.3
22.5°	4183.9	4085.6	3837.9	3692.9	3629.1
25°	4072.9	3936.1	3654.4	3479.5	3415.2
27.5°	3940.7	3795.3	3483.6	3283.0	3184.7
30°	3799.8	3637.2	3295.7	3078.2	2962.7
32.5°	3663.0	3466.4	3116.7	2860.4	2753.5
35°	3509.5	3291.6	2916.1	2647.0	2552.8
37.5°	3360.0	3124.9	2728.1	2433.3	2326.8
40°	3201.9	2946.0	2531.5	2228.5	2117.6
42.5°	3039.8	2766.6	2335.4	2019.2	1912.8
45°	2869.0	2582.7	2134.8	1831.2	1728.9
47.5°	2706.8	2403.8	1942.7	1639.2	1545.5
50°	2527.4	2224.5	1754.7	1459.9	1370.6
52.5°	2352.1	2031.9	1575.3	1293.6	1212.5
55°	2181.4	1848.4	1387.4	1131.5	1050.3
57.5°	2006.5	1665.0	1221.2	982.0	913.6
60°	1827.2	1485.6	1045.9	828.4	760.0
62.5°	1652.4	1310.8	896.4	691.6	657.7
65°	1473.0	1126.9	742.8	597.9	584.7
67.5°	1302.2	956.2	597.9	525.0	512.3
70°	1122.8	789.9	495.0	452.5	435.3
72.5°	952.1	635.9	414.0	380.0	371.4
75°	785.4	486.5	341.5	311.6	307.5
77.5°	619.2	345.6	269.0	251.8	243.2
80°	465.2	247.8	204.7	188.0	188.0
82.5°	324.3	166.6	140.9	132.2	132.2
85°	183.4	93.8	81.0	81.0	81.0
87.5°	68.4	34.0	34.0	29.9	29.9
90°	2.1	25.2	68.6	64.3	66.4
92.5°	43.4	58.8	60.9	62.9	62.9
95°	102.2	121.7	125.2	125.2	121.7
97.5°	170.0	188.2	195.9	195.9	195.9
100°	248.3	264.5	270.0	270.0	268.0
102.5°	330.9	342.8	350.5	352.6	350.5
105°	421.2	426.7	431.0	434.5	434.5
107.5°	510.7	519.1	519.1	520.5	510.7
110°	597.5	608.7	608.7	608.7	603.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	691.2	703.1	701.0	695.4	691.2
115°	783.6	794.8	791.2	789.2	783.6
117.5°	875.2	890.6	880.8	875.2	869.6
120°	967.6	982.9	967.6	967.6	961.2
122.5°	1051.5	1071.1	1061.4	1055.7	1051.5
125°	1139.7	1157.2	1151.6	1145.2	1143.2
127.5°	1225.7	1247.4	1239.7	1231.3	1225.7
130°	1306.2	1331.4	1327.9	1323.6	1316.0
132.5°	1396.4	1416.0	1417.4	1407.6	1402.1
135°	1474.1	1495.7	1500.0	1497.9	1492.3
137.5°	1560.8	1578.3	1581.8	1580.5	1572.1
140°	1637.1	1654.6	1664.3	1664.3	1656.7
142.5°	1715.5	1732.9	1738.5	1740.7	1732.9
145°	1789.7	1803.6	1814.8	1816.9	1809.2
147.5°	1856.1	1873.6	1882.0	1885.5	1877.8
150°	1924.7	1936.6	1944.2	1950.5	1944.2
152.5°	1985.5	1997.4	2007.2	2014.9	2007.2
155°	2046.4	2051.9	2058.3	2068.1	2061.8
157.5°	2098.8	2103.1	2106.6	2120.5	2110.7
160°	2145.7	2149.9	2152.1	2163.9	2155.5
162.5°	2189.1	2189.1	2191.2	2204.5	2194.7
165°	2226.2	2224.1	2224.1	2238.1	2228.3
167.5°	2259.8	2253.5	2253.5	2267.4	2257.6
170°	2285.0	2279.3	2277.3	2291.2	2279.3
172.5°	2302.4	2296.9	2294.7	2308.8	2296.9
175°	2316.4	2310.8	2306.6	2320.7	2308.8
177.5°	2324.1	2318.5	2314.3	2326.2	2314.3
180°	2320.7	2320.7	2320.7	2320.7	2320.7

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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	12.20	13.12	13.07	14.01	15.13	8.16	9.08	9.03	9.97	11.09
	3H	13.89	14.71	14.77	15.61	16.76	9.35	10.18	10.24	11.08	12.23
	4H	14.50	15.28	15.40	16.18	17.34	9.81	10.59	10.71	11.49	12.65
	6H	14.93	15.65	15.85	16.56	17.73	10.14	10.85	11.05	11.76	12.94
	8H	15.06	15.74	15.98	16.67	17.84	10.23	10.91	11.15	11.84	13.01
	12H	15.13	15.78	16.06	16.70	17.90	10.28	10.92	11.20	11.84	13.04
4H	2H	12.23	13.00	13.13	13.91	15.07	8.77	9.54	9.67	10.45	11.61
	3H	14.07	14.71	14.99	15.65	16.83	10.13	10.77	11.04	11.71	12.88
	4H	14.77	15.35	15.70	16.29	17.49	10.68	11.27	11.61	12.20	13.40
	6H	15.29	15.80	16.23	16.75	17.96	11.10	11.61	12.05	12.56	13.77
	8H	15.47	15.94	16.42	16.89	18.11	11.23	11.71	12.18	12.66	13.87
	12H	15.57	16.00	16.54	16.97	18.19	11.30	11.73	12.27	12.70	13.92
8H	4H	14.74	15.21	15.69	16.16	17.38	10.97	11.44	11.91	12.39	13.60
	6H	15.32	15.71	16.29	16.70	17.91	11.49	11.88	12.46	12.87	14.09
	8H	15.54	15.88	16.52	16.86	18.09	11.68	12.03	12.66	13.01	14.24
	12H	15.68	15.99	16.66	16.96	18.24	11.81	12.11	12.79	13.08	14.36
12H	4H	14.70	15.12	15.66	16.09	17.31	10.98	11.40	11.94	12.37	13.59
	6H	15.29	15.64	16.27	16.62	17.85	11.54	11.89	12.52	12.87	14.10
	8H	15.52	15.82	16.50	16.80	18.08	11.76	12.06	12.74	13.03	14.31