

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: P920182

Luminaire Tested: DFN2DIP-SQ3F0-090D090US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920182
REPORT IS A COMBINATION OF REPORTS P899962 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D090US935-RLLFLL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

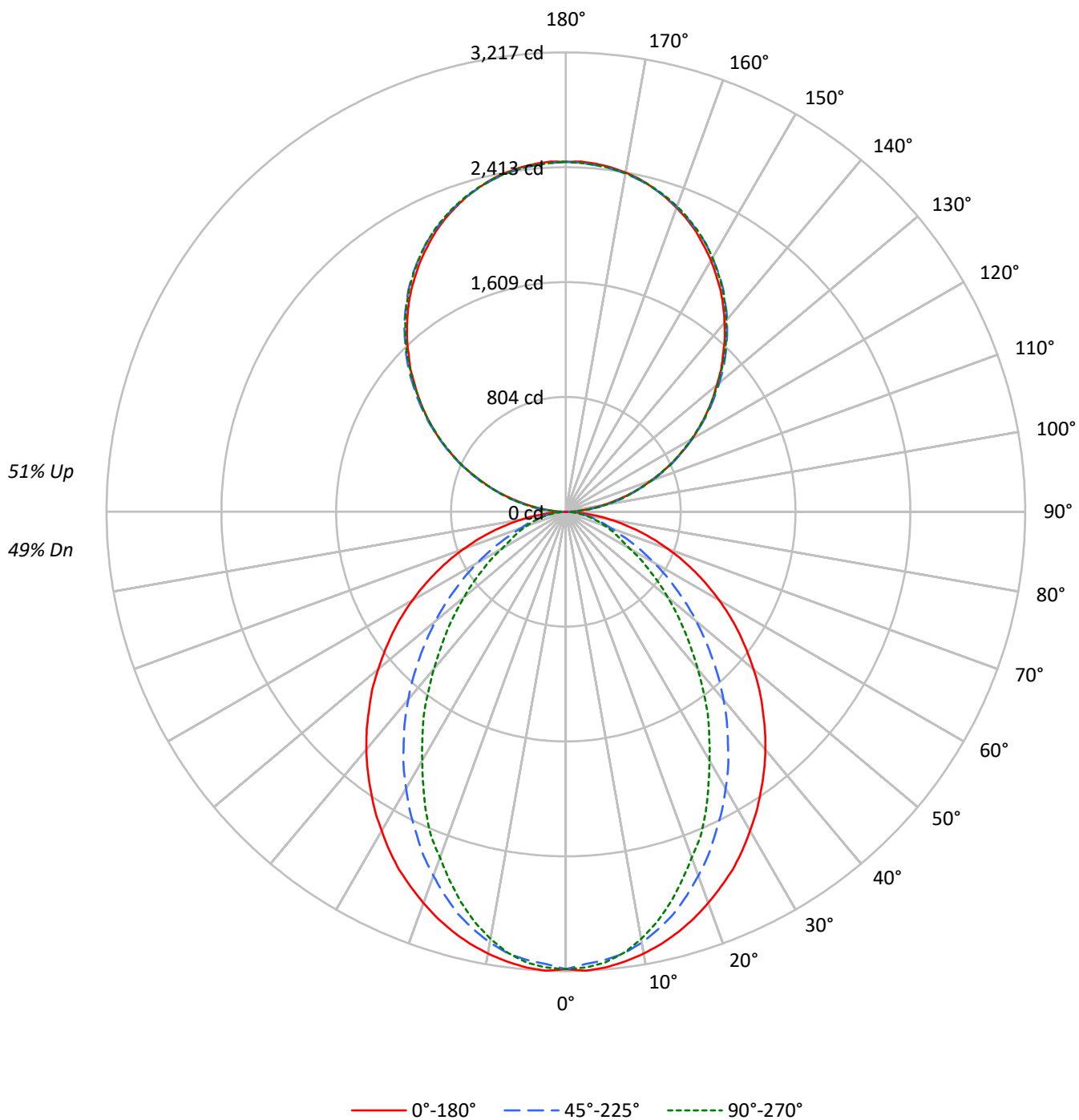
Lumens per Lamp: N/A
Luminaire Lumens: 13444.4 lumens
Efficiency: N/A
Efficacy: 86.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 156.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3670	3670	3670
5°	3673	3609	3633
10°	3635	3536	3514
15°	3582	3417	3330
20°	3514	3253	3105
25°	3443	3071	2887
30°	3350	2883	2612
35°	3258	2682	2370
40°	3165	2475	2093
45°	3056	2245	1842
50°	2944	2013	1597
55°	2827	1765	1361
60°	2690	1507	1119
65°	2534	1244	1006
70°	2344	999	909
75°	2104	876	824
80°	1758	727	710
85°	1192	473	527

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3056 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	2.2
10°-20°	824.0	6.1
20°-30°	1156.9	8.6
30°-40°	1261.0	9.4
40°-50°	1159.0	8.6
50°-60°	910.3	6.8
60°-70°	592.5	4.4
70°-80°	305.0	2.3
80°-90°	84.8	0.6
90°-100°	151.6	1.1
100°-110°	481.8	3.6
110°-120°	824.6	6.1
120°-130°	1084.4	8.1
130°-140°	1217.2	9.1
140°-150°	1193.6	8.9
150°-160°	1001.3	7.4
160°-170°	664.0	4.9
170°-180°	232.1	1.7
0°-30°	2281.0	17.0
0°-40°	3542.0	26.3
0°-60°	5611.3	41.7
0°-90°	6593.6	49.0
90°-120°	1458.0	10.8
90°-150°	4953.4	36.8
90°-180°	6851.0	51.0
0°-180°	13444.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	2	27	72	68	70	13
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7

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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	11.54	12.36	12.51	13.34	14.63	7.50	8.32	8.47	9.30	10.59
	3H	13.21	13.95	14.19	14.94	16.25	8.68	9.42	9.66	10.41	11.72
	4H	13.82	14.51	14.81	15.51	16.82	9.13	9.82	10.12	10.82	12.13
	6H	14.23	14.87	15.24	15.87	17.20	9.44	10.08	10.45	11.08	12.41
	8H	14.36	14.97	15.37	15.98	17.31	9.53	10.14	10.54	11.15	12.48
	12H	14.42	15.00	15.43	16.00	17.36	9.57	10.15	10.59	11.16	12.51
4H	2H	11.55	12.25	12.56	13.24	14.56	8.09	8.79	9.09	9.78	11.10
	3H	13.38	13.95	14.39	14.98	16.31	9.43	10.01	10.44	11.03	12.37
	4H	14.06	14.59	15.08	15.61	16.96	9.98	10.50	10.99	11.52	12.87
	6H	14.57	15.03	15.60	16.07	17.42	10.39	10.84	11.42	11.88	13.23
	8H	14.75	15.17	15.78	16.20	17.57	10.51	10.94	11.54	11.97	13.33
	12H	14.84	15.22	15.89	16.27	17.64	10.57	10.96	11.62	12.00	13.37
8H	4H	14.03	14.45	15.06	15.49	16.85	10.25	10.68	11.28	11.71	13.07
	6H	14.59	14.94	15.65	16.01	17.38	10.76	11.11	11.82	12.18	13.55
	8H	14.80	15.11	15.87	16.17	17.55	10.95	11.26	12.01	12.31	13.70
	12H	14.94	15.21	16.00	16.26	17.69	11.06	11.33	12.13	12.38	13.81
12H	4H	13.98	14.36	15.03	15.41	16.78	10.26	10.64	11.30	11.68	13.06
	6H	14.57	14.87	15.63	15.93	17.31	10.81	11.12	11.87	12.18	13.56
	8H	14.78	15.05	15.85	16.11	17.53	11.01	11.28	12.08	12.34	13.76