

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: P917642

Luminaire Tested: DFN2DIP-SQ4F0-070D140US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917642
REPORT IS A COMBINATION OF REPORTS P900188 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US930-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

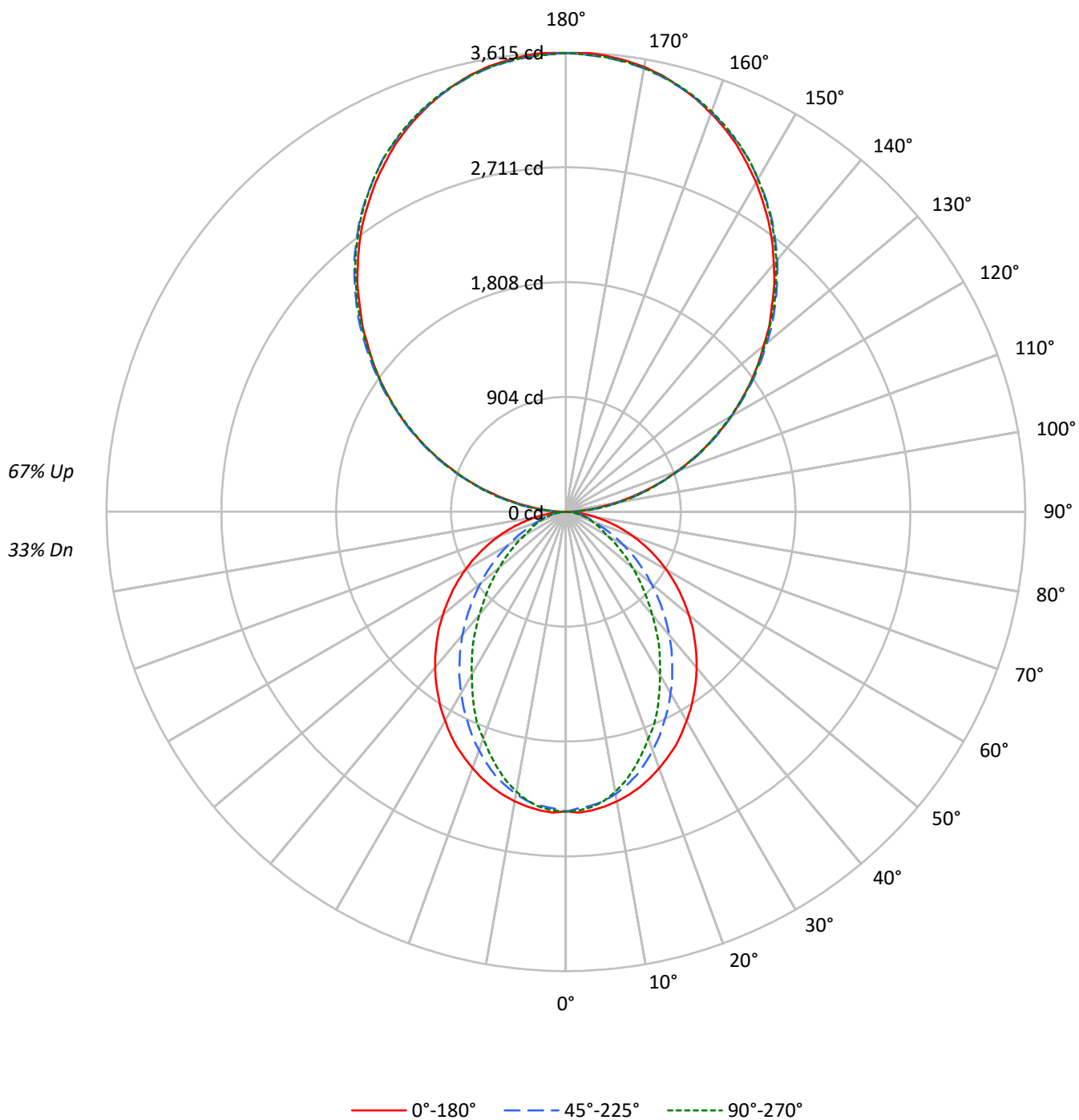
Lumens per Lamp: N/A
Luminaire Lumens: 14952.6 lumens
Efficiency: N/A
Efficacy: 89.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1655	1655	1655
5°	1658	1629	1640
10°	1641	1597	1587
15°	1619	1545	1505
20°	1589	1473	1404
25°	1558	1391	1306
30°	1517	1308	1183
35°	1477	1218	1074
40°	1436	1125	949
45°	1388	1022	837
50°	1339	918	726
55°	1287	807	620
60°	1228	691	511
65°	1159	572	460
70°	1076	462	417
75°	972	408	381
80°	821	343	332
85°	571	231	252

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2842 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.1	1.5
10°-20°	606.9	4.1
20°-30°	852.0	5.7
30°-40°	928.8	6.2
40°-50°	853.6	5.7
50°-60°	670.4	4.5
60°-70°	436.4	2.9
70°-80°	224.6	1.5
80°-90°	67.6	0.5
90°-100°	223.4	1.5
100°-110°	709.8	4.7
110°-120°	1214.6	8.1
120°-130°	1597.4	10.7
130°-140°	1793.0	12.0
140°-150°	1758.2	11.8
150°-160°	1474.9	9.9
160°-170°	978.1	6.5
170°-180°	341.9	2.3
0°-30°	1679.9	11.2
0°-40°	2608.7	17.4
0°-60°	4132.7	27.6
0°-90°	4861.2	32.5
90°-120°	2147.7	14.4
90°-150°	7296.4	48.8
90°-180°	10091.0	67.5
0°-180°	14952.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2359	2359	2359	2359	2359	
5°	2359	2348	2320	2340	2333	224
15°	2244	2220	2147	2107	2086	632
25°	2036	1968	1827	1740	1708	937
35°	1755	1646	1458	1324	1276	1098
45°	1434	1291	1067	916	864	1108
55°	1091	924	694	566	525	975
65°	736	564	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	3	39	107	100	103	15
95°	159	189	195	195	189	177
105°	655	664	670	676	676	691
115°	1219	1236	1231	1228	1219	1206
125°	1773	1800	1791	1782	1778	1584
135°	2293	2327	2333	2330	2321	1772
145°	2784	2806	2823	2826	2814	1739
155°	3183	3192	3202	3217	3207	1465
165°	3463	3460	3460	3482	3466	977
175°	3603	3595	3588	3610	3591	342
180°	3610	3610	3610	3610	3610	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2358.7	2358.7	2358.7	2358.7	2358.7
2.5°	2369.3	2358.7	2335.2	2356.7	2352.4
5°	2358.7	2348.1	2320.3	2339.5	2333.1
7.5°	2339.5	2326.8	2296.9	2305.3	2294.7
10°	2313.9	2299.0	2256.3	2249.8	2237.1
12.5°	2281.9	2262.7	2205.0	2192.3	2168.7
15°	2243.5	2219.9	2147.4	2106.9	2085.6
17.5°	2198.6	2164.5	2074.8	2027.8	1993.6
20°	2147.4	2104.6	1998.0	1944.7	1897.6
22.5°	2092.0	2042.8	1918.9	1846.4	1814.5
25°	2036.5	1968.0	1827.2	1739.8	1707.6
27.5°	1970.3	1897.6	1741.8	1641.5	1592.4
30°	1899.9	1818.6	1647.8	1539.1	1481.4
32.5°	1831.5	1733.2	1558.4	1430.2	1376.7
35°	1754.7	1645.8	1458.1	1323.6	1276.4
37.5°	1680.0	1562.4	1364.1	1216.6	1163.4
40°	1600.9	1473.0	1265.8	1114.3	1058.7
42.5°	1519.9	1383.3	1167.7	1009.6	956.4
45°	1434.5	1291.4	1067.4	915.7	864.5
47.5°	1353.4	1201.9	971.3	819.6	772.7
50°	1263.7	1112.2	877.3	729.9	685.3
52.5°	1176.1	1015.9	787.7	646.8	606.3
55°	1090.7	924.2	693.7	565.7	525.2
57.5°	1003.3	832.5	610.6	491.0	456.8
60°	913.6	742.8	522.9	414.3	380.0
62.5°	826.1	655.4	448.2	345.8	328.8
65°	736.5	563.5	371.4	299.0	292.4
67.5°	651.1	478.1	299.0	262.4	256.2
70°	561.4	394.9	247.5	226.2	217.6
72.5°	476.1	318.0	207.0	190.0	185.7
75°	392.7	243.2	170.7	155.8	153.8
77.5°	309.6	172.8	134.5	125.9	121.6
80°	232.6	123.8	102.4	94.0	94.0
82.5°	162.2	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.2	17.0	17.0	14.9	14.9
90°	3.3	39.2	106.6	100.1	103.4
92.5°	67.5	91.4	94.7	97.9	97.9
95°	158.9	189.4	194.8	194.8	189.4
97.5°	264.5	292.8	304.8	304.8	304.8
100°	386.4	411.4	420.0	420.0	416.8
102.5°	514.8	533.3	545.3	548.5	545.3
105°	655.2	663.9	670.4	675.8	675.8
107.5°	794.4	807.6	807.6	809.7	794.4
110°	929.4	946.8	946.8	946.8	938.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1075.2	1093.7	1090.5	1081.7	1075.2
115°	1218.9	1236.3	1230.9	1227.6	1218.9
117.5°	1361.5	1385.4	1370.2	1361.5	1352.7
120°	1505.1	1529.1	1505.1	1505.1	1495.3
122.5°	1635.7	1666.1	1651.0	1642.3	1635.7
125°	1772.9	1800.0	1791.3	1781.5	1778.2
127.5°	1906.7	1940.4	1928.4	1915.4	1906.7
130°	2031.8	2071.0	2065.6	2059.0	2047.1
132.5°	2172.2	2202.7	2204.9	2189.6	2180.9
135°	2293.0	2326.8	2333.3	2330.0	2321.3
137.5°	2428.0	2455.2	2460.7	2458.5	2445.4
140°	2546.6	2573.8	2589.1	2589.1	2577.1
142.5°	2668.5	2695.7	2704.4	2707.7	2695.7
145°	2783.8	2805.6	2823.1	2826.3	2814.3
147.5°	2887.2	2914.4	2927.5	2933.0	2921.0
150°	2993.9	3012.4	3024.3	3034.1	3024.3
152.5°	3088.6	3107.1	3122.3	3134.3	3122.3
155°	3183.3	3192.0	3201.8	3217.0	3207.2
157.5°	3264.9	3271.4	3276.8	3298.6	3283.4
160°	3337.8	3344.4	3347.6	3366.1	3353.0
162.5°	3405.3	3405.3	3408.5	3429.2	3414.0
165°	3463.0	3459.7	3459.7	3481.5	3466.2
167.5°	3515.2	3505.4	3505.4	3527.1	3511.9
170°	3554.4	3545.7	3542.4	3564.2	3545.7
172.5°	3581.6	3572.9	3569.6	3591.4	3572.9
175°	3603.4	3594.6	3588.1	3609.9	3591.4
177.5°	3615.3	3606.6	3600.1	3618.5	3600.1
180°	3609.9	3609.9	3609.9	3609.9	3609.9

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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	7.01	7.71	8.11	8.81	10.31	2.97	3.68	4.07	4.77	6.27
	3H	8.68	9.31	9.79	10.41	11.93	4.15	4.78	5.26	5.88	7.40
	4H	9.29	9.88	10.40	10.99	12.51	4.59	5.19	5.71	6.29	7.82
	6H	9.71	10.26	10.83	11.36	12.90	4.91	5.46	6.04	6.56	8.10
	8H	9.83	10.35	10.96	11.47	13.00	5.00	5.52	6.13	6.64	8.17
	12H	9.89	10.39	11.02	11.50	13.05	5.04	5.53	6.17	6.65	8.20
4H	2H	7.01	7.61	8.14	8.71	10.24	3.55	4.15	4.68	5.25	6.78
	3H	8.83	9.33	9.96	10.46	12.00	4.89	5.39	6.02	6.52	8.06
	4H	9.52	9.98	10.66	11.10	12.66	5.43	5.89	6.57	7.01	8.57
	6H	10.04	10.43	11.18	11.57	13.12	5.85	6.24	6.99	7.38	8.93
	8H	10.21	10.58	11.35	11.71	13.28	5.98	6.34	7.12	7.47	9.04
	12H	10.30	10.63	11.46	11.78	13.35	6.03	6.37	7.19	7.51	9.08
8H	4H	9.48	9.85	10.62	10.98	12.55	5.71	6.07	6.85	7.21	8.77
	6H	10.05	10.35	11.21	11.53	13.09	6.22	6.52	7.38	7.70	9.26
	8H	10.27	10.53	11.43	11.69	13.27	6.41	6.68	7.58	7.83	9.42
	12H	10.40	10.64	11.57	11.79	13.40	6.53	6.76	7.70	7.91	9.53
12H	4H	9.43	9.76	10.59	10.90	12.48	5.71	6.04	6.86	7.18	8.75
	6H	10.02	10.29	11.19	11.44	13.02	6.27	6.54	7.44	7.69	9.27
	8H	10.24	10.47	11.41	11.62	13.24	6.48	6.71	7.65	7.86	9.48