

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: P917232

Luminaire Tested: DFN2DIP-SQ2F0-080D040US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917232
REPORT IS A COMBINATION OF REPORTS P899793 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-080D040US930-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

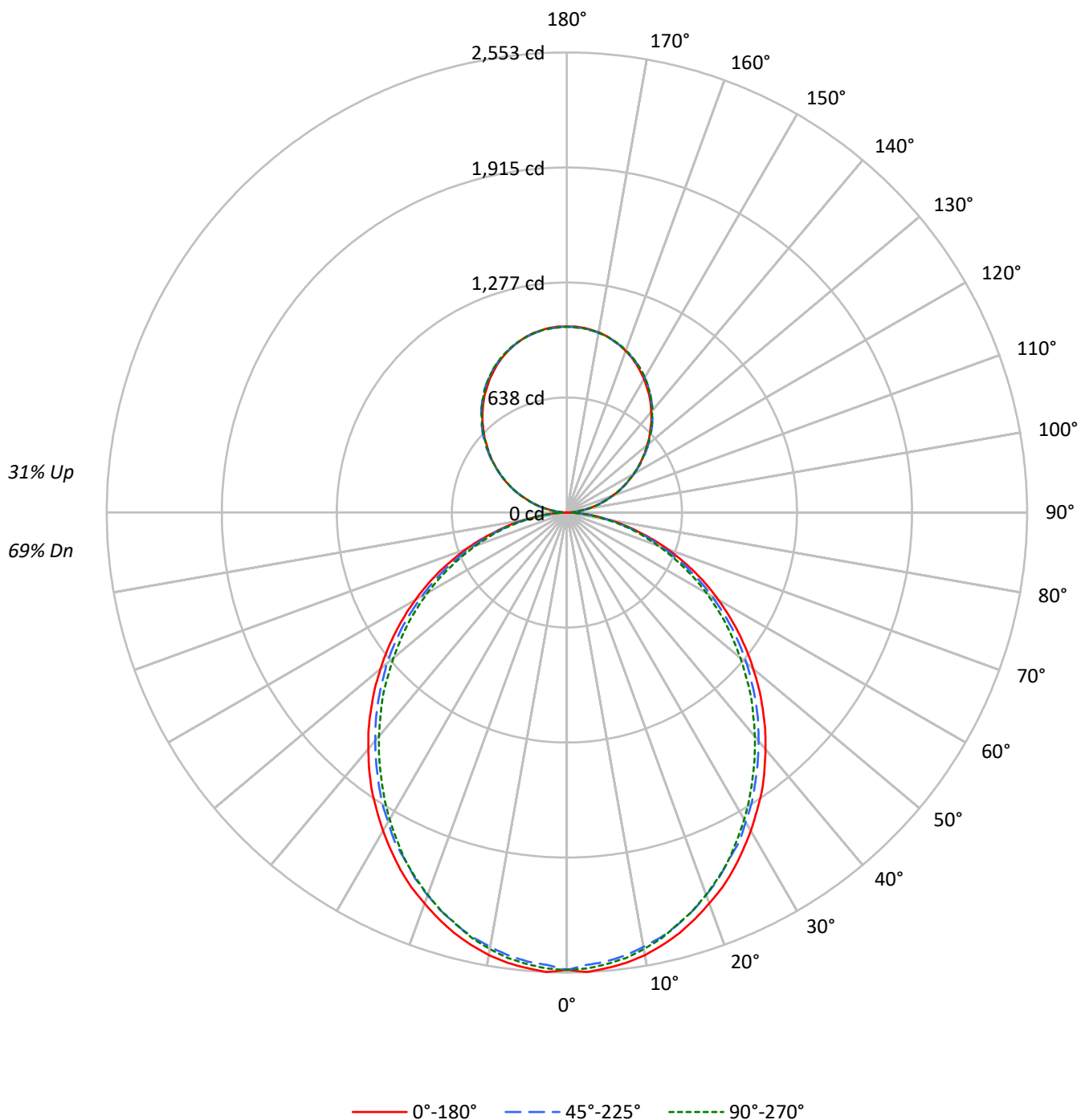
Lumens per Lamp: N/A
Luminaire Lumens: 9343.3 lumens
Efficiency: N/A
Efficacy: 86.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5581	5581	5581
5°	5580	5491	5532
10°	5525	5405	5449
15°	5434	5303	5325
20°	5314	5168	5197
25°	5195	5008	5051
30°	5049	4858	4867
35°	4908	4684	4673
40°	4738	4507	4488
45°	4567	4329	4299
50°	4381	4142	4080
55°	4184	3927	3876
60°	3961	3672	3643
65°	3716	3406	3369
70°	3406	3083	3071
75°	2980	2694	2786
80°	2461	2200	2263
85°	1664	1389	1421

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4567 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.9	2.6
10°-20°	672.1	7.2
20°-30°	987.7	10.6
30°-40°	1147.1	12.3
40°-50°	1145.7	12.3
50°-60°	999.0	10.7
60°-70°	738.5	7.9
70°-80°	417.8	4.5
80°-90°	113.2	1.2
90°-100°	63.8	0.7
100°-110°	202.8	2.2
110°-120°	347.0	3.7
120°-130°	456.4	4.9
130°-140°	512.3	5.5
140°-150°	502.4	5.4
150°-160°	421.4	4.5
160°-170°	279.5	3.0
170°-180°	97.7	1.0
0°-30°	1898.6	20.3
0°-40°	3045.8	32.6
0°-60°	5190.5	55.6
0°-90°	6460.1	69.1
90°-120°	613.6	6.6
90°-150°	2084.7	22.3
90°-180°	2883.0	30.9
0°-180°	9343.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
90°	1	11	30	29	30	9
95°	45	54	56	56	54	51
105°	187	190	192	193	193	198
115°	348	353	352	351	348	344
125°	506	514	512	509	508	453
135°	655	665	667	666	663	506
145°	795	802	807	808	804	497
155°	910	912	915	919	916	419
165°	989	988	988	995	990	279
175°	1030	1027	1025	1031	1026	98
180°	1031	1031	1031	1031	1031	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
90°	0.9	11.2	30.5	28.6	29.5
92.5°	19.2	26.1	27.1	28.0	28.0
95°	45.4	54.1	55.7	55.7	54.1
97.5°	75.6	83.6	87.1	87.1	87.1
100°	110.4	117.6	120.0	120.0	119.1
102.5°	147.1	152.4	155.8	156.7	155.8
105°	187.2	189.6	191.5	193.1	193.1
107.5°	227.0	230.7	230.7	231.3	227.0
110°	265.5	270.5	270.5	270.5	268.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	307.2	312.5	311.5	309.1	307.2
115°	348.2	353.3	351.6	350.7	348.2
117.5°	389.0	395.8	391.5	389.0	386.5
120°	430.1	436.8	430.1	430.1	427.2
122.5°	467.3	476.1	471.7	469.2	467.3
125°	506.5	514.3	511.8	509.0	508.1
127.5°	544.8	554.4	551.0	547.2	544.8
130°	580.5	591.7	590.2	588.3	584.9
132.5°	620.6	629.3	630.0	625.6	623.1
135°	655.2	664.8	666.7	665.7	663.2
137.5°	693.7	701.5	703.0	702.4	698.7
140°	727.6	735.4	739.7	739.7	736.3
142.5°	762.5	770.2	772.7	773.6	770.2
145°	795.4	801.6	806.6	807.6	804.1
147.5°	824.9	832.7	836.4	838.0	834.5
150°	855.4	860.7	864.1	866.9	864.1
152.5°	882.5	887.7	892.1	895.5	892.1
155°	909.5	912.0	914.8	919.2	916.3
157.5°	932.9	934.7	936.2	942.5	938.1
160°	953.7	955.5	956.4	961.7	958.0
162.5°	972.9	972.9	973.9	979.7	975.4
165°	989.4	988.5	988.5	994.7	990.3
167.5°	1004.4	1001.5	1001.5	1007.8	1003.4
170°	1015.5	1013.0	1012.1	1018.3	1013.0
172.5°	1023.3	1020.8	1019.9	1026.1	1020.8
175°	1029.6	1027.0	1025.2	1031.4	1026.1
177.5°	1033.0	1030.5	1028.6	1033.9	1028.6
180°	1031.4	1031.4	1031.4	1031.4	1031.4

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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	14.73	15.80	15.51	16.59	17.56	14.29	15.35	15.06	16.15	17.12
	3H	16.39	17.34	17.18	18.15	19.15	15.90	16.86	16.69	17.66	18.66
	4H	16.97	17.88	17.78	18.69	19.70	16.48	17.38	17.28	18.20	19.21
	6H	17.37	18.20	18.18	19.02	20.05	16.87	17.70	17.68	18.52	19.55
	8H	17.47	18.26	18.30	19.11	20.13	16.97	17.76	17.80	18.60	19.63
	12H	17.52	18.28	18.35	19.11	20.16	17.01	17.77	17.84	18.60	19.65
4H	2H	15.21	16.11	16.02	16.92	17.93	14.85	15.75	15.66	16.57	17.58
	3H	17.07	17.82	17.89	18.67	19.70	16.66	17.41	17.48	18.26	19.29
	4H	17.78	18.46	18.61	19.31	20.36	17.35	18.04	18.19	18.88	19.94
	6H	18.28	18.88	19.13	19.75	20.81	17.85	18.45	18.70	19.32	20.37
	8H	18.43	18.98	19.28	19.85	20.92	17.99	18.55	18.84	19.41	20.48
	12H	18.50	19.00	19.38	19.89	20.96	18.05	18.55	18.93	19.44	20.52
8H	4H	17.98	18.53	18.83	19.40	20.47	17.60	18.15	18.45	19.02	20.09
	6H	18.59	19.05	19.47	19.96	21.03	18.21	18.67	19.09	19.58	20.65
	8H	18.80	19.21	19.69	20.11	21.20	18.41	18.82	19.30	19.72	20.81
	12H	18.93	19.29	19.83	20.18	21.32	18.52	18.88	19.41	19.77	20.91
12H	4H	17.97	18.47	18.84	19.36	20.43	17.60	18.10	18.47	18.99	20.06
	6H	18.62	19.03	19.51	19.93	21.02	18.25	18.65	19.14	19.56	20.64
	8H	18.86	19.22	19.75	20.11	21.25	18.47	18.83	19.37	19.73	20.87