

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: P920300

Luminaire Tested: DFN2DIP-SQ3F0-120D120US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920300
REPORT IS A COMBINATION OF REPORTS P900021 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D120US935-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

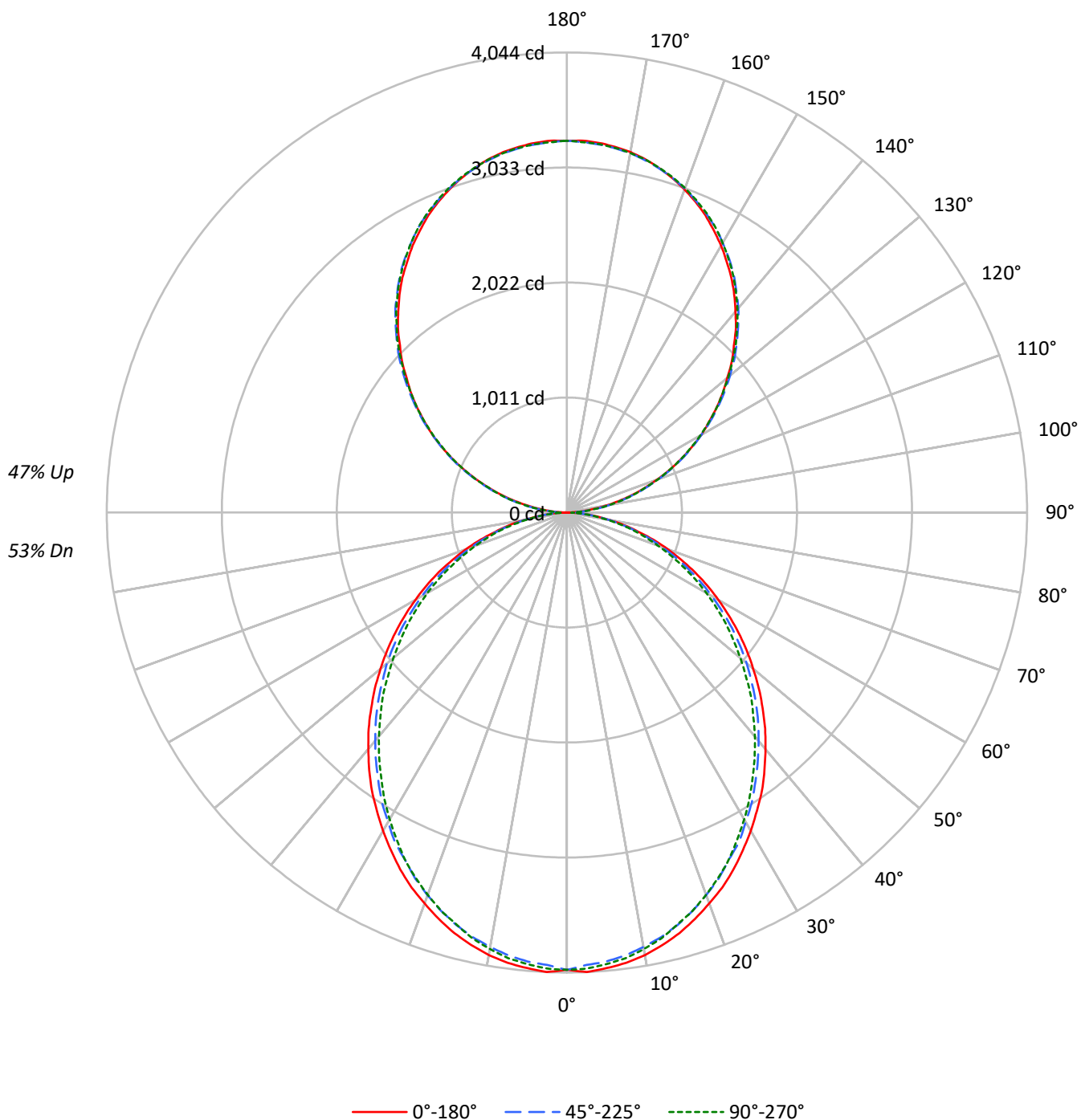
Lumens per Lamp: N/A
Luminaire Lumens: 19372.4 lumens
Efficiency: N/A
Efficacy: 88.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 219.9
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
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85		71	71	71		59
1	98	94	90	87	91	87	84	81	74	72	70		63	61	59		52
2	90	82	76	71	83	76	71	66	65	61	58		55	52	50		46
3	82	72	65	59	75	67	61	55	58	53	49		49	45	42		41
4	75	64	56	50	69	60	52	47	51	46	41		43	39	36		36
5	69	57	49	43	63	53	46	40	46	40	36		39	35	31		33
6	63	51	43	37	58	48	40	35	41	36	31		35	31	27		30
7	59	46	38	33	54	43	36	31	37	32	28		32	28	24		27
8	54	42	34	29	50	39	32	27	34	29	24		29	25	22		25
9	51	38	31	26	47	36	29	24	31	26	22		27	23	19		23
10	47	35	28	23	44	33	26	22	29	23	20		25	21	18		21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4606	4606	4606
5°	4611	4539	4571
10°	4570	4475	4508
15°	4500	4398	4410
20°	4407	4293	4309
25°	4313	4167	4193
30°	4197	4050	4046
35°	4087	3913	3891
40°	3951	3774	3743
45°	3816	3634	3591
50°	3668	3488	3416
55°	3513	3318	3254
60°	3337	3117	3069
65°	3145	2909	2851
70°	2900	2655	2615
75°	2562	2350	2396
80°	2154	1961	1980
85°	1516	1299	1296

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3816 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.4	2.0
10°-20°	1064.6	5.5
20°-30°	1564.6	8.1
30°-40°	1817.2	9.4
40°-50°	1814.9	9.4
50°-60°	1582.5	8.2
60°-70°	1169.9	6.0
70°-80°	661.9	3.4
80°-90°	184.0	0.9
90°-100°	202.2	1.0
100°-110°	642.4	3.3
110°-120°	1099.4	5.7
120°-130°	1445.9	7.5
130°-140°	1623.0	8.4
140°-150°	1591.6	8.2
150°-160°	1335.1	6.9
160°-170°	885.4	4.6
170°-180°	309.5	1.6
0°-30°	3007.6	15.5
0°-40°	4824.8	24.9
0°-60°	8222.2	42.4
0°-90°	10237.9	52.8
90°-120°	1944.1	10.0
90°-150°	6604.6	34.1
90°-180°	9134.0	47.1
0°-180°	19372.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4020	4020	4020	4020	4020	
5°	4020	4005	3962	3993	3986	382
15°	3827	3804	3754	3769	3750	1078
25°	3464	3433	3367	3375	3367	1594
35°	2988	2950	2888	2864	2845	1866
45°	2432	2405	2346	2304	2289	1877
55°	1840	1817	1771	1724	1705	1645
65°	1241	1218	1179	1144	1125	1227
75°	649	642	622	599	607	693
85°	158	155	151	139	135	177
90°	3	36	96	91	94	19
95°	144	171	176	176	171	160
105°	593	601	607	612	612	626
115°	1103	1119	1114	1111	1103	1091
125°	1605	1629	1622	1613	1610	1434
135°	2076	2106	2112	2109	2101	1604
145°	2520	2540	2555	2558	2548	1574
155°	2881	2889	2898	2912	2903	1326
165°	3135	3132	3132	3151	3138	884
175°	3262	3254	3248	3268	3251	310
180°	3268	3268	3268	3268	3268	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4020.3	4020.3	4020.3	4020.3	4020.3
2.5°	4043.6	4024.3	3981.7	4020.3	4012.9
5°	4020.3	4005.0	3962.4	3993.1	3985.7
7.5°	3993.1	3970.1	3927.5	3958.7	3950.9
10°	3950.9	3923.8	3877.5	3908.2	3896.8
12.5°	3892.7	3869.7	3823.3	3842.6	3834.8
15°	3827.0	3804.1	3753.6	3769.2	3749.9
17.5°	3745.9	3722.9	3672.4	3691.7	3672.4
20°	3656.8	3633.8	3579.8	3591.2	3576.1
22.5°	3568.2	3533.4	3482.9	3482.9	3475.2
25°	3463.6	3432.9	3367.3	3374.7	3367.3
27.5°	3347.6	3320.5	3270.5	3259.0	3239.8
30°	3231.9	3200.8	3142.9	3131.4	3115.9
32.5°	3108.0	3085.1	3023.1	2999.8	2984.2
35°	2988.3	2949.8	2887.8	2864.5	2845.2
37.5°	2852.9	2818.1	2756.1	2729.1	2709.8
40°	2714.0	2682.8	2620.8	2586.4	2570.8
42.5°	2578.6	2547.4	2485.9	2447.0	2424.0
45°	2431.7	2404.7	2346.4	2304.2	2288.6
47.5°	2288.6	2261.5	2199.6	2157.0	2134.0
50°	2137.7	2118.4	2064.2	2010.1	1990.8
52.5°	1990.8	1963.8	1913.7	1871.0	1844.0
55°	1840.3	1817.0	1770.6	1724.2	1704.9
57.5°	1689.4	1670.1	1619.6	1573.3	1557.7
60°	1538.4	1523.3	1469.1	1426.5	1415.0
62.5°	1391.6	1364.5	1326.0	1287.5	1271.9
65°	1241.1	1217.7	1179.1	1144.3	1125.1
67.5°	1086.5	1066.8	1032.3	1005.3	989.7
70°	943.3	927.7	892.9	865.8	850.7
72.5°	796.5	780.9	761.6	734.6	723.1
75°	649.3	641.9	622.2	599.3	607.0
77.5°	518.0	502.4	494.6	483.1	471.7
80°	386.8	382.6	374.9	363.4	355.6
82.5°	262.9	262.9	259.2	243.7	243.7
85°	158.3	154.6	150.9	139.1	135.3
87.5°	69.7	61.9	54.2	42.6	38.6
90°	2.9	35.5	96.5	90.7	93.6
92.5°	61.0	82.7	85.7	88.7	88.7
95°	143.8	171.4	176.3	176.3	171.4
97.5°	239.4	265.0	275.9	275.9	275.9
100°	349.7	372.4	380.2	380.2	377.3
102.5°	466.0	482.7	493.5	496.5	493.5
105°	593.1	600.9	606.8	611.7	611.7
107.5°	719.1	731.0	731.0	732.9	719.1
110°	841.3	857.0	857.0	857.0	849.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	973.3	990.1	987.0	979.2	973.3
115°	1103.3	1119.1	1114.1	1111.2	1103.3
117.5°	1232.3	1254.0	1240.3	1232.3	1224.5
120°	1362.4	1384.1	1362.4	1362.4	1353.6
122.5°	1480.7	1508.2	1494.4	1486.5	1480.7
125°	1604.7	1629.4	1621.5	1612.6	1609.6
127.5°	1726.0	1756.4	1745.6	1733.8	1726.0
130°	1839.2	1874.7	1869.7	1863.8	1853.0
132.5°	1966.3	1993.9	1995.8	1982.0	1974.2
135°	2075.6	2106.2	2112.1	2109.1	2101.3
137.5°	2197.8	2222.4	2227.3	2225.3	2213.5
140°	2305.1	2329.8	2343.6	2343.6	2332.7
142.5°	2415.5	2440.2	2448.0	2450.9	2440.2
145°	2519.9	2539.6	2555.4	2558.4	2547.5
147.5°	2613.5	2638.1	2650.0	2654.9	2644.0
150°	2710.1	2726.8	2737.6	2746.5	2737.6
152.5°	2795.7	2812.4	2826.3	2837.2	2826.3
155°	2881.4	2889.3	2898.2	2912.0	2903.1
157.5°	2955.4	2961.2	2966.1	2985.9	2972.1
160°	3021.3	3027.3	3030.2	3047.0	3035.1
162.5°	3082.4	3082.4	3085.4	3104.1	3090.3
165°	3134.6	3131.7	3131.7	3151.3	3137.6
167.5°	3181.9	3173.0	3173.0	3192.8	3179.0
170°	3217.4	3209.5	3206.5	3226.2	3209.5
172.5°	3242.0	3234.1	3231.2	3250.9	3234.1
175°	3261.7	3253.8	3247.9	3267.6	3250.9
177.5°	3272.6	3264.6	3258.7	3275.5	3258.7
180°	3267.6	3267.6	3267.6	3267.6	3267.6

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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	12.80	13.69	13.74	14.64	15.87	12.36	13.25	13.29	14.20	15.43
	3H	14.46	15.26	15.40	16.22	17.47	13.97	14.77	14.91	15.73	16.98
	4H	15.05	15.80	16.00	16.76	18.03	14.55	15.31	15.51	16.27	17.53
	6H	15.44	16.14	16.41	17.11	18.38	14.94	15.64	15.91	16.61	17.88
	8H	15.55	16.21	16.52	17.20	18.47	15.05	15.71	16.02	16.69	17.97
	12H	15.60	16.22	16.58	17.20	18.50	15.09	15.72	16.07	16.70	17.99
4H	2H	13.26	14.02	14.23	14.98	16.24	12.91	13.66	13.87	14.63	15.89
	3H	15.13	15.76	16.10	16.75	18.02	14.72	15.35	15.69	16.34	17.62
	4H	15.84	16.41	16.82	17.40	18.70	15.41	15.99	16.40	16.98	18.28
	6H	16.35	16.85	17.34	17.86	19.15	15.92	16.41	16.91	17.42	18.72
	8H	16.50	16.96	17.49	17.96	19.28	16.06	16.52	17.06	17.53	18.84
	12H	16.57	16.99	17.59	18.01	19.33	16.12	16.54	17.14	17.56	18.88
8H	4H	16.03	16.50	17.03	17.50	18.81	15.66	16.12	16.65	17.12	18.43
	6H	16.66	17.04	17.68	18.09	19.40	16.27	16.66	17.30	17.70	19.01
	8H	16.88	17.21	17.91	18.25	19.58	16.48	16.82	17.51	17.85	19.18
	12H	17.01	17.30	18.04	18.33	19.70	16.60	16.89	17.63	17.92	19.29
12H	4H	16.02	16.44	17.03	17.46	18.77	15.65	16.07	16.66	17.09	18.41
	6H	16.69	17.02	17.72	18.06	19.39	16.31	16.65	17.34	17.68	19.01
	8H	16.93	17.22	17.96	18.25	19.62	16.55	16.84	17.58	17.87	19.24