

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: P904254

Luminaire Tested: DFN2DIP-SQ4F0-160D140US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904254
REPORT IS A COMBINATION OF REPORTS P900202 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D140US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

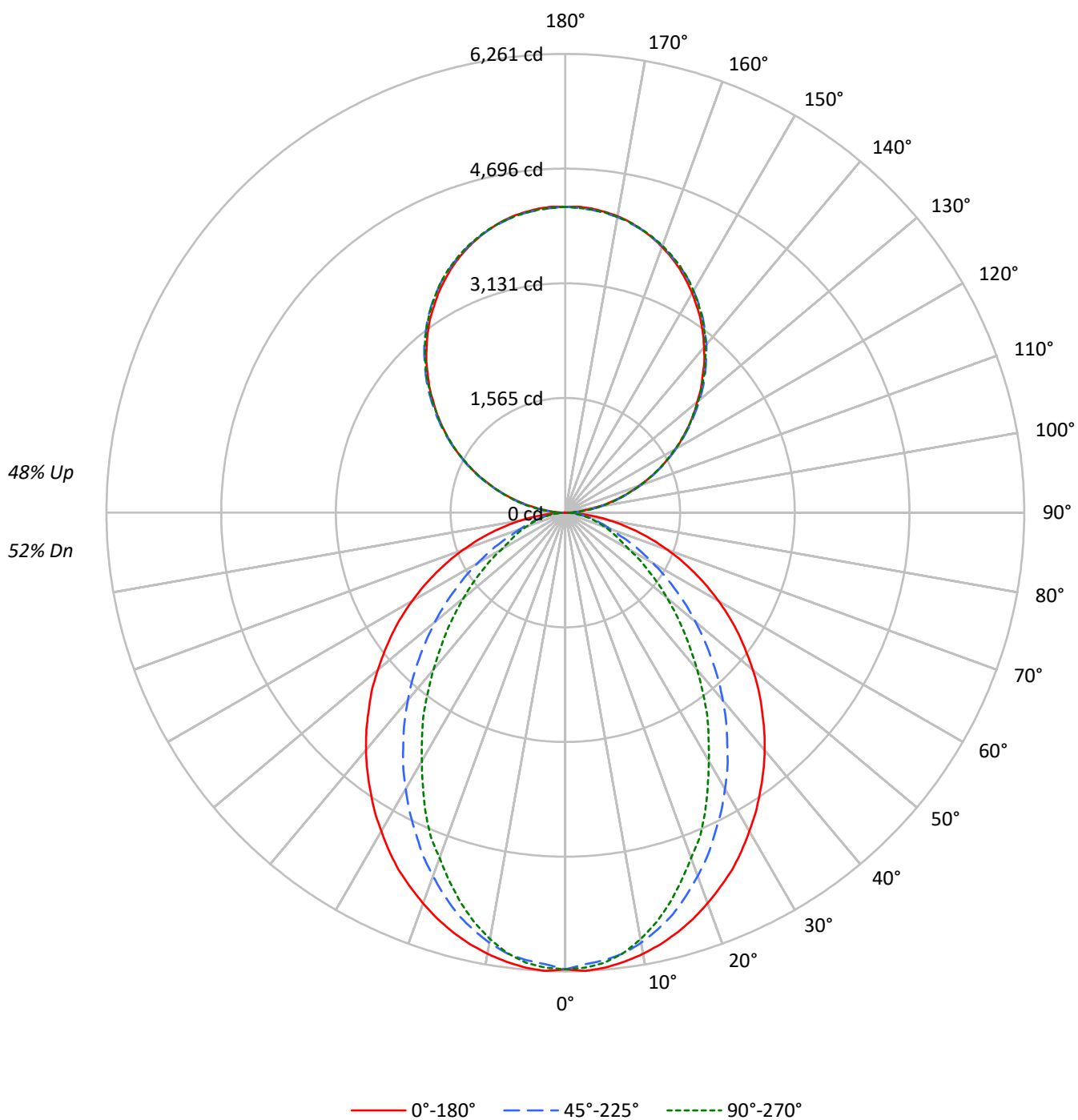
Lumens per Lamp: N/A
Luminaire Lumens: 24496.7 lumens
Efficiency: N/A
Efficacy: 89.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 272.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904254

CATALOG NUMBER: DFN2DIP-SQ4F0-160D140US830-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P904254

CATALOG NUMBER: DFN2DIP-SQ4F0-160D140US830-RLFL

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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58
1	99	95	91	88	91	88	85	82	75	73	71	63	62	60	52	51	50
2	90	83	77	72	83	77	72	68	66	63	59	56	53	51	47	45	43
3	83	74	67	61	76	69	62	57	59	54	50	50	47	44	42	39	37
4	76	66	58	52	70	61	54	49	53	48	43	45	41	38	38	35	33
5	70	59	51	45	65	55	48	43	47	42	38	41	36	33	34	31	29
6	65	53	45	39	60	49	42	37	43	37	33	37	33	29	31	28	25
7	60	48	40	35	55	45	38	33	39	34	30	34	29	26	29	25	23
8	56	44	36	31	52	41	34	29	36	30	26	31	27	23	26	23	21
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	24	21	19
10	49	37	30	25	45	35	28	24	30	25	22	26	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4373	4373	4373
5°	4380	4305	4333
10°	4337	4221	4193
15°	4277	4083	3976
20°	4198	3891	3710
25°	4117	3676	3452
30°	4009	3456	3126
35°	3902	3219	2838
40°	3794	2974	2509
45°	3668	2701	2210
50°	3538	2426	1918
55°	3402	2133	1638
60°	3244	1825	1350
65°	3064	1512	1216
70°	2844	1221	1103
75°	2569	1078	1006
80°	2169	907	877
85°	1510	611	668

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3668 cd/sqm

TEST NUMBER: P904254

CATALOG NUMBER: DFN2DIP-SQ4F0-160D140US830-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	584.1	2.4
10°-20°	1603.6	6.5
20°-30°	2251.4	9.2
30°-40°	2454.2	10.0
40°-50°	2255.7	9.2
50°-60°	1771.5	7.2
60°-70°	1153.0	4.7
70°-80°	593.5	2.4
80°-90°	163.4	0.7
90°-100°	258.2	1.1
100°-110°	820.5	3.3
110°-120°	1404.2	5.7
120°-130°	1846.7	7.5
130°-140°	2072.8	8.5
140°-150°	2032.6	8.3
150°-160°	1705.1	7.0
160°-170°	1130.8	4.6
170°-180°	395.2	1.6
0°-30°	4439.2	18.1
0°-40°	6893.3	28.1
0°-60°	10920.4	44.6
0°-90°	12830.4	52.4
90°-120°	2483.0	10.1
90°-150°	8435.1	34.4
90°-180°	11666.0	47.6
0°-180°	24496.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6233	6233	6233	6233	6233	
5°	6233	6205	6131	6182	6165	591
15°	5928	5866	5674	5567	5511	1671
25°	5381	5200	4828	4597	4512	2475
35°	4637	4349	3853	3497	3373	2902
45°	3790	3412	2820	2420	2284	2927
55°	2882	2442	1833	1495	1388	2575
65°	1946	1489	982	790	773	1929
75°	1038	643	451	412	406	1098
85°	242	124	107	107	107	278
90°	4	45	123	116	120	24
95°	184	219	225	225	219	204
105°	757	768	775	781	781	799
115°	1409	1429	1423	1419	1409	1394
125°	2050	2081	2071	2060	2056	1831
135°	2651	2690	2698	2694	2684	2049
145°	3218	3244	3264	3267	3254	2011
155°	3680	3690	3702	3719	3708	1694
165°	4003	4000	4000	4025	4007	1129
175°	4166	4156	4148	4173	4152	396
180°	4173	4173	4173	4173	4173	

TEST NUMBER: P904254

CATALOG NUMBER: DFN2DIP-SQ4F0-160D140US830-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6232.8	6232.8	6232.8	6232.8	6232.8
2.5°	6260.9	6232.8	6170.5	6227.5	6216.1
5°	6232.8	6204.7	6131.0	6181.9	6165.2
7.5°	6181.9	6148.4	6069.4	6091.6	6063.5
10°	6114.4	6074.9	5962.3	5945.0	5911.4
12.5°	6029.9	5979.1	5826.5	5793.0	5730.8
15°	5928.2	5866.0	5674.5	5567.3	5511.0
17.5°	5809.7	5719.3	5482.4	5358.4	5268.2
20°	5674.5	5561.4	5279.5	5138.8	5014.4
22.5°	5527.8	5397.9	5070.6	4879.2	4794.7
25°	5381.3	5200.5	4828.3	4597.3	4512.3
27.5°	5206.5	5014.4	4602.6	4337.6	4207.7
30°	5020.4	4805.6	4354.3	4067.1	3914.5
32.5°	4839.7	4579.9	4117.9	3779.2	3637.9
35°	4636.7	4348.9	3852.8	3497.3	3372.9
37.5°	4439.3	4128.7	3604.5	3214.8	3074.2
40°	4230.4	3892.3	3344.7	2944.3	2797.7
42.5°	4016.2	3655.3	3085.6	2667.9	2527.2
45°	3790.5	3412.4	2820.5	2419.5	2284.3
47.5°	3576.3	3176.0	2566.7	2165.8	2041.9
50°	3339.3	2938.9	2318.4	1928.8	1810.9
52.5°	3107.8	2684.6	2081.4	1709.2	1602.0
55°	2882.1	2442.2	1833.1	1494.9	1387.8
57.5°	2651.1	2199.9	1613.4	1297.4	1207.0
60°	2414.1	1962.9	1381.8	1094.6	1004.2
62.5°	2183.1	1731.9	1184.3	913.8	868.9
65°	1946.2	1488.9	981.5	789.9	772.6
67.5°	1720.5	1263.3	789.9	693.6	676.8
70°	1483.6	1043.7	654.1	597.9	575.1
72.5°	1257.9	840.2	547.0	502.1	490.7
75°	1037.7	642.7	451.2	411.7	406.3
77.5°	818.0	456.6	355.4	332.7	321.4
80°	614.6	327.3	270.5	248.4	248.4
82.5°	428.5	220.3	186.2	174.7	174.7
85°	242.3	123.9	107.2	107.2	107.2
87.5°	90.4	44.9	44.9	39.5	39.5
90°	3.8	45.3	123.3	115.7	119.5
92.5°	78.0	105.7	109.4	113.2	113.2
95°	183.7	219.0	225.2	225.2	219.0
97.5°	305.8	338.5	352.3	352.3	352.3
100°	446.7	475.6	485.6	485.6	481.8
102.5°	595.1	616.5	630.4	634.1	630.4
105°	757.4	767.5	775.1	781.3	781.3
107.5°	918.4	933.6	933.6	936.0	918.4
110°	1074.5	1094.6	1094.6	1094.6	1084.5

TEST NUMBER: P904254

CATALOG NUMBER: DFN2DIP-SQ4F0-160D140US830-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1243.0	1264.4	1260.7	1250.6	1243.0
115°	1409.1	1429.3	1423.0	1419.2	1409.1
117.5°	1574.0	1601.7	1584.0	1574.0	1563.9
120°	1740.0	1767.7	1740.0	1740.0	1728.7
122.5°	1891.0	1926.2	1908.6	1898.6	1891.0
125°	2049.6	2080.9	2070.9	2059.5	2055.8
127.5°	2204.2	2243.3	2229.4	2214.3	2204.2
130°	2348.9	2394.2	2387.9	2380.4	2366.5
132.5°	2511.2	2546.5	2549.0	2531.4	2521.3
135°	2650.9	2689.9	2697.5	2693.7	2683.6
137.5°	2806.9	2838.4	2844.7	2842.1	2827.1
140°	2944.0	2975.5	2993.1	2993.1	2979.3
142.5°	3084.9	3116.4	3126.5	3130.3	3116.4
145°	3218.3	3243.5	3263.6	3267.4	3253.6
147.5°	3337.8	3369.3	3384.4	3390.7	3376.8
150°	3461.1	3482.5	3496.4	3507.7	3496.4
152.5°	3570.6	3592.0	3609.7	3623.4	3609.7
155°	3680.1	3690.1	3701.5	3719.1	3707.8
157.5°	3774.4	3782.0	3788.3	3813.4	3795.8
160°	3858.8	3866.3	3870.1	3891.5	3876.3
162.5°	3936.7	3936.7	3940.5	3964.4	3946.8
165°	4003.4	3999.7	3999.7	4024.8	4007.2
167.5°	4063.8	4052.5	4052.5	4077.6	4060.0
170°	4109.1	4099.0	4095.3	4120.4	4099.0
172.5°	4140.6	4130.5	4126.7	4151.9	4130.5
175°	4165.8	4155.7	4148.1	4173.3	4151.9
177.5°	4179.5	4169.5	4162.0	4183.3	4162.0
180°	4173.3	4173.3	4173.3	4173.3	4173.3

TEST NUMBER: P904254

CATALOG NUMBER: DFN2DIP-SQ4F0-160D140US830-RLLFLL

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	12.50	13.35	13.45	14.31	15.55	8.46	9.31	9.41	10.27	11.51
	3H	14.19	14.95	15.14	15.91	17.18	9.66	10.42	10.61	11.38	12.64
	4H	14.80	15.52	15.77	16.49	17.76	10.11	10.83	11.08	11.79	13.07
	6H	15.23	15.89	16.21	16.86	18.15	10.43	11.09	11.41	12.07	13.35
	8H	15.36	15.98	16.34	16.98	18.26	10.52	11.15	11.51	12.14	13.42
	12H	15.42	16.02	16.41	17.00	18.31	10.57	11.16	11.56	12.15	13.45
4H	2H	12.53	13.24	13.50	14.21	15.48	9.07	9.78	10.04	10.75	12.02
	3H	14.36	14.96	15.34	15.96	17.24	10.42	11.02	11.40	12.01	13.30
	4H	15.06	15.60	16.05	16.59	17.90	10.97	11.51	11.96	12.50	13.81
	6H	15.58	16.05	16.58	17.06	18.37	11.39	11.86	12.39	12.87	14.18
	8H	15.76	16.19	16.76	17.20	18.52	11.52	11.96	12.52	12.96	14.29
	12H	15.85	16.25	16.88	17.27	18.60	11.59	11.98	12.61	13.00	14.33
8H	4H	15.03	15.46	16.03	16.47	17.79	11.25	11.69	12.26	12.70	14.02
	6H	15.60	15.96	16.63	17.01	18.33	11.77	12.13	12.80	13.18	14.50
	8H	15.82	16.14	16.86	17.17	18.51	11.96	12.28	13.00	13.32	14.66
	12H	15.96	16.24	17.00	17.27	18.65	12.09	12.37	13.13	13.40	14.78
12H	4H	14.98	15.37	16.00	16.40	17.72	11.26	11.65	12.28	12.68	14.00
	6H	15.57	15.89	16.61	16.93	18.27	11.82	12.14	12.86	13.18	14.52
	8H	15.80	16.08	16.84	17.11	18.49	12.04	12.32	13.08	13.35	14.73

END OF REPORT