

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: P904250

Luminaire Tested: DFN2DIP-SQ4F0-160D120US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904250
REPORT IS A COMBINATION OF REPORTS P900184 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D120US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

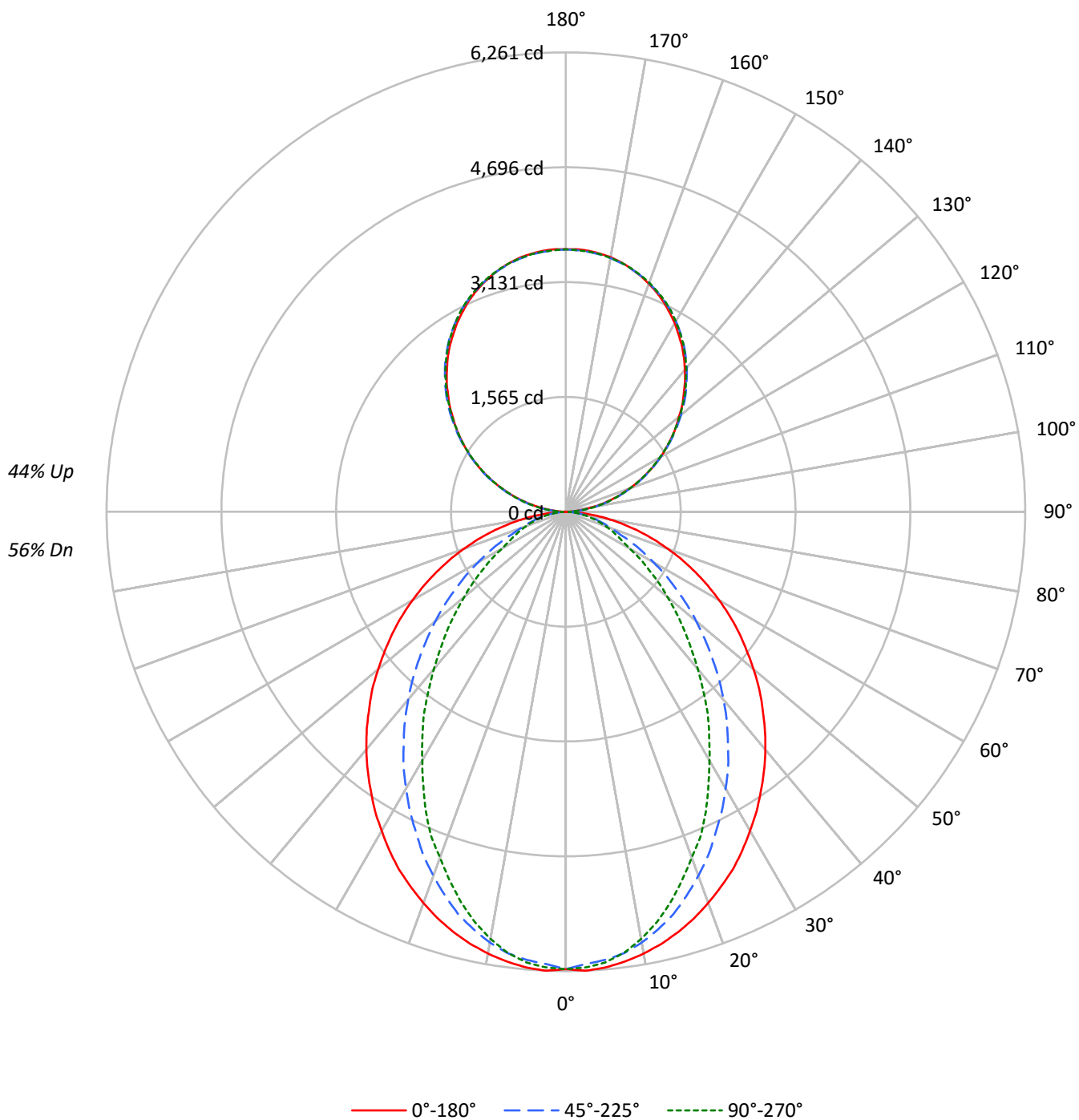
Lumens per Lamp: N/A
Luminaire Lumens: 22828.4 lumens
Efficiency: N/A
Efficacy: 88.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 256.8
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: P904250

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US830-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P904250

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US830-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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

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: P904250

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US830-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	584.1	2.6
10°-20°	1603.6	7.0
20°-30°	2251.4	9.9
30°-40°	2454.2	10.8
40°-50°	2255.7	9.9
50°-60°	1771.5	7.8
60°-70°	1153.0	5.1
70°-80°	593.5	2.6
80°-90°	161.7	0.7
90°-100°	221.3	1.0
100°-110°	703.3	3.1
110°-120°	1203.6	5.3
120°-130°	1582.9	6.9
130°-140°	1776.7	7.8
140°-150°	1742.3	7.6
150°-160°	1461.5	6.4
160°-170°	969.3	4.2
170°-180°	338.8	1.5
0°-30°	4439.2	19.4
0°-40°	6893.3	30.2
0°-60°	10920.4	47.8
0°-90°	12828.7	56.2
90°-120°	2128.2	9.3
90°-150°	7230.1	31.7
90°-180°	10000.0	43.8
0°-180°	22828.4	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°	3	39	106	99	102	22
95°	157	188	193	193	188	175
105°	649	658	664	670	670	685
115°	1208	1225	1220	1216	1208	1195
125°	1757	1784	1775	1765	1762	1570
135°	2272	2306	2312	2309	2300	1756
145°	2758	2780	2797	2801	2789	1724
155°	3154	3163	3173	3188	3178	1452
165°	3432	3428	3428	3450	3435	968
175°	3571	3562	3556	3577	3559	339
180°	3577	3577	3577	3577	3577	

TEST NUMBER: P904250

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US830-RLLFLL

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°	3.2	38.8	105.7	99.2	102.5
92.5°	66.8	90.6	93.8	97.1	97.1
95°	157.4	187.7	193.0	193.0	187.7
97.5°	262.0	290.1	302.0	302.0	302.0
100°	382.9	407.6	416.2	416.2	413.0
102.5°	510.1	528.4	540.3	543.6	540.3
105°	649.2	657.8	664.3	669.7	669.7
107.5°	787.2	800.2	800.2	802.3	787.2
110°	921.0	938.2	938.2	938.2	929.6

TEST NUMBER: P904250

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US830-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1065.4	1083.8	1080.5	1072.0	1065.4
115°	1207.8	1225.1	1219.6	1216.4	1207.8
117.5°	1349.1	1372.8	1357.7	1349.1	1340.5
120°	1491.5	1515.1	1491.5	1491.5	1481.8
122.5°	1620.9	1651.1	1636.0	1627.3	1620.9
125°	1756.7	1783.7	1775.1	1765.4	1762.1
127.5°	1889.4	1922.8	1910.9	1898.0	1889.4
130°	2013.4	2052.2	2046.8	2040.3	2028.4
132.5°	2152.5	2182.7	2184.8	2169.7	2161.2
135°	2272.2	2305.6	2312.2	2308.9	2300.3
137.5°	2405.9	2432.9	2438.3	2436.1	2423.2
140°	2523.5	2550.4	2565.5	2565.5	2553.6
142.5°	2644.3	2671.3	2679.8	2683.0	2671.3
145°	2758.5	2780.1	2797.4	2800.7	2788.8
147.5°	2861.0	2887.9	2901.0	2906.3	2894.5
150°	2966.7	2985.0	2996.9	3006.6	2996.9
152.5°	3060.5	3078.8	3094.0	3105.9	3094.0
155°	3154.3	3163.0	3172.7	3187.8	3178.1
157.5°	3235.3	3241.7	3247.1	3268.6	3253.6
160°	3307.5	3314.0	3317.2	3335.6	3322.6
162.5°	3374.3	3374.3	3377.6	3398.1	3383.0
165°	3431.5	3428.3	3428.3	3449.8	3434.7
167.5°	3483.3	3473.6	3473.6	3495.1	3480.1
170°	3522.1	3513.4	3510.2	3531.8	3513.4
172.5°	3549.0	3540.4	3537.2	3558.8	3540.4
175°	3570.6	3562.0	3555.6	3577.0	3558.8
177.5°	3582.5	3573.8	3567.3	3585.7	3567.3
180°	3577.0	3577.0	3577.0	3577.0	3577.0

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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	12.84	13.73	13.75	14.65	15.83	8.81	9.69	9.71	10.61	11.80
	3H	14.53	15.32	15.45	16.25	17.46	10.00	10.79	10.92	11.72	12.93
	4H	15.14	15.89	16.08	16.83	18.05	10.45	11.20	11.39	12.14	13.35
	6H	15.57	16.26	16.52	17.20	18.43	10.78	11.46	11.72	12.41	13.64
	8H	15.70	16.36	16.66	17.32	18.54	10.87	11.52	11.82	12.48	13.71
	12H	15.77	16.39	16.73	17.34	18.60	10.91	11.54	11.87	12.49	13.74
4H	2H	12.87	13.62	13.81	14.55	15.77	9.41	10.16	10.35	11.09	12.31
	3H	14.71	15.33	15.66	16.30	17.53	10.77	11.39	11.72	12.35	13.59
	4H	15.41	15.97	16.37	16.93	18.19	11.32	11.88	12.28	12.84	14.10
	6H	15.93	16.41	16.90	17.40	18.66	11.74	12.23	12.71	13.21	14.47
	8H	16.11	16.56	17.08	17.54	18.81	11.87	12.32	12.85	13.30	14.57
	12H	16.21	16.62	17.20	17.61	18.89	11.94	12.35	12.93	13.34	14.62
8H	4H	15.38	15.83	16.35	16.81	18.08	11.60	12.06	12.58	13.04	14.31
	6H	15.95	16.33	16.95	17.35	18.61	12.13	12.50	13.13	13.52	14.79
	8H	16.17	16.50	17.18	17.51	18.80	12.32	12.65	13.33	13.66	14.94
	12H	16.31	16.61	17.33	17.61	18.94	12.44	12.73	13.45	13.73	15.07
12H	4H	15.33	15.74	16.33	16.74	18.01	11.61	12.02	12.61	13.02	14.29
	6H	15.93	16.26	16.94	17.27	18.55	12.18	12.51	13.18	13.52	14.80
	8H	16.15	16.44	17.16	17.45	18.78	12.39	12.68	13.40	13.68	15.02