

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: P923139

Luminaire Tested: DFN2DIP-SQ4F0-080D160US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923139
REPORT IS A COMBINATION OF REPORTS P901728 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D160US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

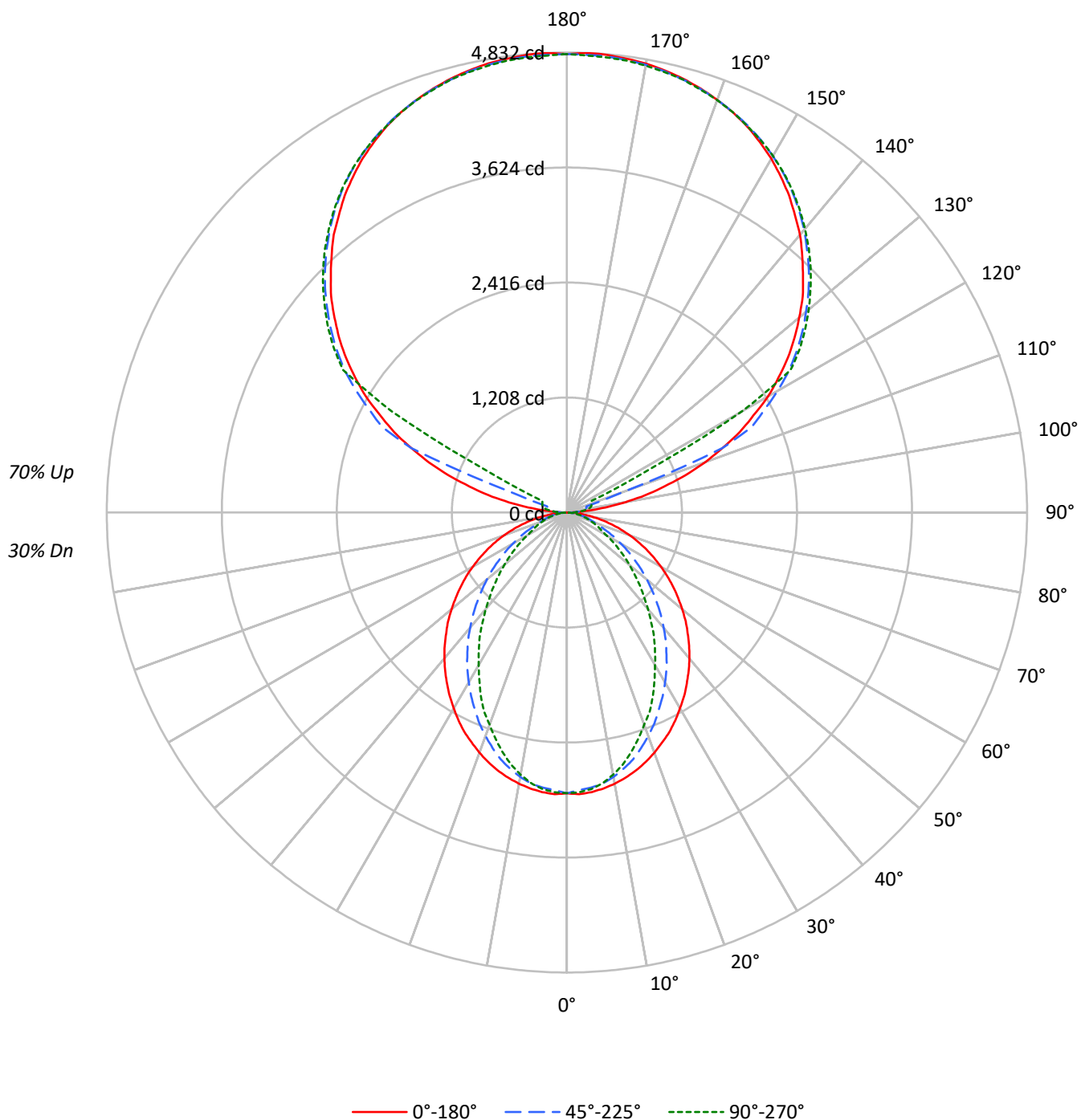
Lumens per Lamp: N/A
Luminaire Lumens: 20188.4 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 193.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923139

CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P923139

CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US940-RLLONL

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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2069	2069	2069
5°	2072	2036	2050
10°	2052	1997	1983
15°	2023	1931	1881
20°	1986	1841	1755
25°	1948	1739	1633
30°	1896	1635	1478
35°	1846	1523	1343
40°	1795	1407	1187
45°	1735	1278	1046
50°	1673	1148	907
55°	1609	1009	775
60°	1535	863	638
65°	1449	715	575
70°	1345	577	522
75°	1215	510	476
80°	1026	429	414
85°	715	288	315

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2581 cd/sqm

TEST NUMBER: P923139

CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.3	1.4
10°-20°	758.6	3.8
20°-30°	1065.0	5.3
30°-40°	1160.9	5.8
40°-50°	1067.0	5.3
50°-60°	838.0	4.2
60°-70°	545.4	2.7
70°-80°	280.8	1.4
80°-90°	80.1	0.4
90°-100°	158.8	0.8
100°-110°	591.9	2.9
110°-120°	1569.8	7.8
120°-130°	2603.6	12.9
130°-140°	2765.6	13.7
140°-150°	2570.3	12.7
150°-160°	2066.5	10.2
160°-170°	1331.6	6.6
170°-180°	458.3	2.3
0°-30°	2099.9	10.4
0°-40°	3260.8	16.2
0°-60°	5165.8	25.6
0°-90°	6072.1	30.1
90°-120°	2320.4	11.5
90°-150°	10259.9	50.8
90°-180°	14116.0	69.9
0°-180°	20188.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	3	42	70	87	94	19
95°	226	111	136	154	150	268
105°	1059	1164	213	251	265	1132
115°	2003	2062	2150	537	286	1972
125°	2832	2878	2944	2969	2979	2526
135°	3505	3561	3592	3627	3620	2708
145°	4066	4062	4122	4146	4129	2543
155°	4477	4446	4488	4508	4481	2063
165°	4717	4697	4707	4732	4707	1333
175°	4825	4801	4808	4832	4798	459
180°	4815	4815	4815	4815	4815	

TEST NUMBER: P923139

CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	3.3	41.8	69.5	87.3	93.9
92.5°	87.3	73.2	83.6	90.6	93.9
95°	226.3	111.3	135.7	153.5	149.8
97.5°	407.5	122.1	177.5	188.2	191.5
100°	616.9	139.5	198.6	226.3	233.4
102.5°	846.5	839.9	205.6	243.7	254.4
105°	1059.2	1163.9	212.7	250.7	264.7
107.5°	1306.5	1393.5	219.7	257.8	271.8
110°	1543.6	1616.5	609.8	261.4	275.1

TEST NUMBER: P923139

CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1766.7	1829.2	1770.0	268.1	278.8
115°	2003.3	2062.4	2149.7	536.6	285.9
117.5°	2208.9	2278.4	2338.1	1839.5	926.8
120°	2439.0	2491.1	2553.9	2595.8	2125.4
122.5°	2633.8	2689.7	2759.6	2780.3	2784.0
125°	2832.4	2877.9	2944.2	2968.6	2978.9
127.5°	3013.6	3062.5	3115.0	3149.8	3153.1
130°	3184.6	3240.4	3278.5	3316.9	3313.6
132.5°	3358.7	3404.2	3442.3	3473.7	3470.4
135°	3505.1	3561.0	3592.1	3627.2	3620.2
137.5°	3658.2	3700.1	3735.2	3770.0	3759.6
140°	3808.0	3836.1	3874.2	3905.7	3888.3
142.5°	3933.8	3958.2	4003.3	4031.1	4013.7
145°	4066.2	4062.5	4121.7	4146.0	4128.7
147.5°	4180.8	4170.4	4229.6	4247.0	4233.3
150°	4292.5	4268.1	4324.0	4344.7	4327.3
152.5°	4386.4	4358.7	4410.8	4432.0	4407.5
155°	4477.0	4446.0	4487.8	4508.5	4480.8
157.5°	4550.3	4522.6	4554.0	4578.4	4550.3
160°	4613.2	4592.0	4613.2	4633.9	4609.4
162.5°	4668.6	4648.0	4665.3	4689.7	4658.3
165°	4717.4	4696.7	4707.1	4731.5	4707.1
167.5°	4755.9	4734.8	4745.6	4769.9	4738.5
170°	4787.3	4766.3	4773.2	4797.7	4766.3
172.5°	4808.0	4787.3	4794.4	4818.8	4787.3
175°	4825.4	4801.0	4808.0	4832.4	4797.7
177.5°	4832.4	4808.0	4811.8	4836.2	4804.7
180°	4815.1	4815.1	4815.1	4815.1	4815.1

TEST NUMBER: P923139

CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US940-RLONL

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	7.46	8.15	8.58	9.26	10.79	3.43	4.12	4.54	5.22	6.75
	3H	9.14	9.75	10.26	10.87	12.42	4.60	5.22	5.73	6.34	7.88
	4H	9.74	10.33	10.87	11.44	13.00	5.05	5.63	6.18	6.75	8.30
	6H	10.16	10.70	11.30	11.82	13.38	5.36	5.90	6.50	7.02	8.58
	8H	10.28	10.79	11.43	11.93	13.49	5.45	5.96	6.59	7.10	8.65
	12H	10.34	10.83	11.49	11.96	13.54	5.49	5.97	6.64	7.10	8.68
4H	2H	7.46	8.05	8.61	9.17	10.72	4.01	4.59	5.15	5.71	7.26
	3H	9.29	9.77	10.43	10.92	12.48	5.34	5.83	6.49	6.97	8.54
	4H	9.98	10.42	11.13	11.56	13.14	5.89	6.33	7.04	7.47	9.05
	6H	10.49	10.87	11.64	12.03	13.60	6.30	6.68	7.45	7.84	9.41
	8H	10.66	11.02	11.82	12.17	13.76	6.43	6.78	7.58	7.93	9.52
	12H	10.75	11.08	11.92	12.24	13.83	6.48	6.81	7.66	7.97	9.56
8H	4H	9.93	10.29	11.09	11.44	13.03	6.16	6.52	7.31	7.66	9.26
	6H	10.50	10.79	11.67	11.98	13.57	6.67	6.97	7.85	8.16	9.75
	8H	10.72	10.98	11.90	12.14	13.75	6.87	7.12	8.05	8.29	9.90
	12H	10.85	11.08	12.04	12.24	13.89	6.98	7.20	8.16	8.37	10.01
12H	4H	9.88	10.20	11.05	11.36	12.96	6.16	6.48	7.33	7.64	9.24
	6H	10.47	10.73	11.65	11.90	13.51	6.72	6.98	7.90	8.15	9.76
	8H	10.69	10.92	11.88	12.08	13.73	6.93	7.15	8.11	8.32	9.96

END OF REPORT