

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: P920626

Luminaire Tested: DFN2DIP-SQ4F0-160D160US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920626
REPORT IS A COMBINATION OF REPORTS P900220 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D160US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

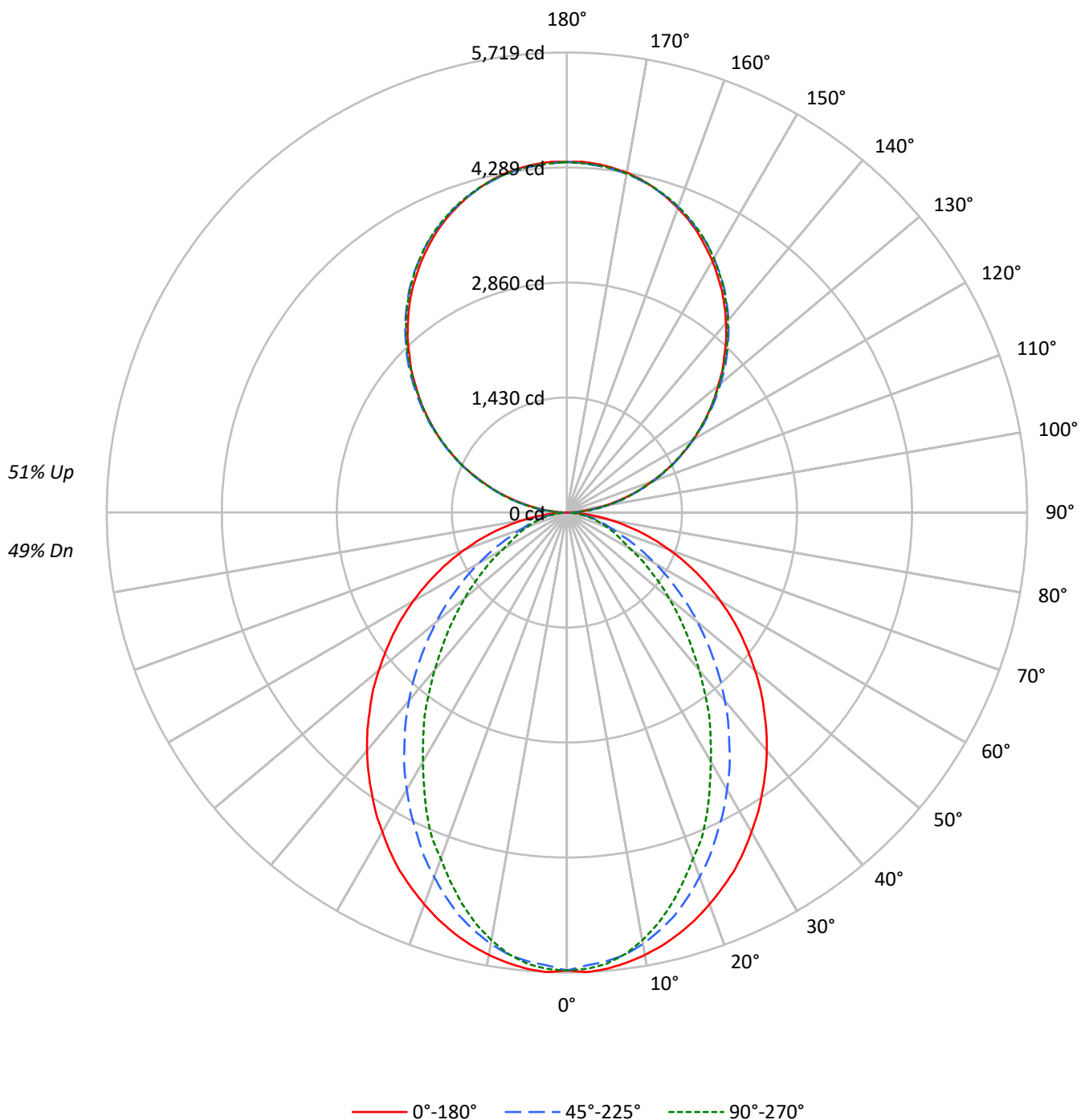
Lumens per Lamp: N/A
Luminaire Lumens: 23902.1 lumens
Efficiency: N/A
Efficacy: 82.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 288.8
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

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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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3995	3995	3995
5°	4001	3932	3958
10°	3962	3856	3830
15°	3907	3729	3632
20°	3835	3554	3389
25°	3761	3358	3154
30°	3662	3157	2855
35°	3564	2940	2593
40°	3465	2716	2292
45°	3350	2468	2019
50°	3232	2216	1752
55°	3107	1948	1496
60°	2964	1667	1233
65°	2798	1382	1111
70°	2598	1115	1007
75°	2347	985	919
80°	1982	829	801
85°	1380	558	610

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3430 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	533.6	2.2
10°-20°	1464.9	6.1
20°-30°	2056.6	8.6
30°-40°	2241.8	9.4
40°-50°	2060.5	8.6
50°-60°	1618.2	6.8
60°-70°	1053.3	4.4
70°-80°	542.2	2.3
80°-90°	150.8	0.6
90°-100°	269.6	1.1
100°-110°	856.6	3.6
110°-120°	1466.0	6.1
120°-130°	1928.1	8.1
130°-140°	2164.2	9.1
140°-150°	2122.2	8.9
150°-160°	1780.2	7.4
160°-170°	1180.6	4.9
170°-180°	412.7	1.7
0°-30°	4055.1	17.0
0°-40°	6296.9	26.3
0°-60°	9975.6	41.7
0°-90°	11721.9	49.0
90°-120°	2592.3	10.8
90°-150°	8806.7	36.8
90°-180°	12180.0	51.0
0°-180°	23902.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5694	5694	5694	5694	5694	
5°	5694	5668	5601	5647	5632	540
15°	5415	5358	5184	5086	5034	1526
25°	4916	4751	4410	4200	4122	2261
35°	4236	3973	3520	3195	3081	2651
45°	3463	3117	2576	2210	2087	2674
55°	2633	2231	1674	1366	1268	2353
65°	1778	1360	897	722	706	1762
75°	948	587	412	376	371	1003
85°	221	113	98	98	98	254
90°	4	47	129	121	125	24
95°	192	229	235	235	229	213
105°	791	801	809	816	816	834
115°	1471	1492	1486	1482	1471	1455
125°	2140	2173	2162	2150	2146	1912
135°	2768	2808	2816	2812	2802	2139
145°	3360	3386	3407	3411	3397	2099
155°	3842	3853	3864	3883	3871	1768
165°	4180	4176	4176	4202	4184	1179
175°	4349	4339	4331	4357	4335	413
180°	4357	4357	4357	4357	4357	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5693.6	5693.6	5693.6	5693.6	5693.6
2.5°	5719.3	5693.6	5636.7	5688.7	5678.3
5°	5693.6	5667.9	5600.6	5647.1	5631.8
7.5°	5647.1	5616.5	5544.3	5564.5	5538.9
10°	5585.4	5549.3	5446.5	5430.7	5400.0
12.5°	5508.2	5461.8	5322.4	5291.8	5235.0
15°	5415.3	5358.5	5183.6	5085.7	5034.3
17.5°	5307.1	5224.5	5008.1	4894.9	4812.4
20°	5183.6	5080.2	4822.7	4694.2	4580.6
22.5°	5049.6	4930.9	4631.9	4457.0	4379.9
25°	4915.7	4750.6	4410.5	4199.5	4121.9
27.5°	4756.1	4580.6	4204.4	3962.3	3843.7
30°	4586.0	4389.8	3977.6	3715.2	3575.8
32.5°	4421.0	4183.7	3761.6	3452.3	3323.2
35°	4235.6	3972.6	3519.5	3194.7	3081.1
37.5°	4055.2	3771.5	3292.6	2936.7	2808.2
40°	3864.4	3555.6	3055.3	2689.6	2555.7
42.5°	3668.7	3339.0	2818.6	2437.1	2308.6
45°	3462.6	3117.2	2576.4	2210.2	2086.6
47.5°	3266.9	2901.2	2344.7	1978.4	1865.3
50°	3050.4	2684.7	2117.8	1761.9	1654.2
52.5°	2838.9	2452.4	1901.3	1561.3	1463.4
55°	2632.8	2230.9	1674.5	1365.5	1267.7
57.5°	2421.7	2009.6	1473.9	1185.2	1102.6
60°	2205.3	1793.1	1262.2	999.9	917.3
62.5°	1994.2	1582.1	1081.8	834.7	793.8
65°	1777.8	1360.1	896.6	721.6	705.8
67.5°	1571.7	1154.0	721.6	633.6	618.3
70°	1355.2	953.4	597.5	546.1	525.4
72.5°	1149.1	767.5	499.6	458.7	448.2
75°	948.0	587.1	412.2	376.1	371.2
77.5°	747.3	417.1	324.7	303.9	293.6
80°	561.5	299.0	247.1	226.9	226.9
82.5°	391.4	201.2	170.0	159.6	159.6
85°	221.4	113.1	97.9	97.9	97.9
87.5°	82.6	41.0	41.0	36.1	36.1
90°	4.0	47.3	128.7	120.9	124.8
92.5°	81.5	110.4	114.3	118.2	118.2
95°	191.7	228.6	235.1	235.1	228.6
97.5°	319.2	353.4	367.8	367.8	367.8
100°	466.3	496.5	507.0	507.0	503.1
102.5°	621.3	643.7	658.1	662.0	658.1
105°	790.7	801.2	809.2	815.7	815.7
107.5°	958.9	974.6	974.6	977.3	958.9
110°	1121.8	1142.8	1142.8	1142.8	1132.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1297.8	1320.2	1316.2	1305.7	1297.8
115°	1471.2	1492.2	1485.7	1481.7	1471.2
117.5°	1643.3	1672.1	1653.8	1643.3	1632.8
120°	1816.7	1845.5	1816.7	1816.7	1804.8
122.5°	1974.3	2011.1	1992.7	1982.2	1974.3
125°	2139.8	2172.6	2162.1	2150.3	2146.4
127.5°	2301.4	2342.1	2327.6	2311.9	2301.4
130°	2452.5	2499.7	2493.2	2485.3	2470.8
132.5°	2621.9	2658.7	2661.3	2642.9	2632.4
135°	2767.7	2808.4	2816.3	2812.4	2801.9
137.5°	2930.6	2963.4	2970.0	2967.3	2951.6
140°	3073.8	3106.6	3125.0	3125.0	3110.5
142.5°	3220.9	3253.7	3264.2	3268.2	3253.7
145°	3360.1	3386.4	3407.4	3411.4	3396.9
147.5°	3484.9	3517.8	3533.5	3540.1	3525.6
150°	3613.6	3636.0	3650.5	3662.3	3650.5
152.5°	3727.9	3750.2	3768.7	3783.1	3768.7
155°	3842.2	3852.7	3864.5	3882.9	3871.1
157.5°	3940.7	3948.6	3955.2	3981.4	3963.1
160°	4028.7	4036.6	4040.6	4062.9	4047.1
162.5°	4110.1	4110.1	4114.1	4139.1	4120.6
165°	4179.8	4175.8	4175.8	4202.1	4183.8
167.5°	4242.8	4231.0	4231.0	4257.3	4238.9
170°	4290.1	4279.6	4275.7	4302.0	4279.6
172.5°	4323.0	4312.5	4308.5	4334.8	4312.5
175°	4349.2	4338.7	4330.8	4357.2	4334.8
177.5°	4363.7	4353.2	4345.3	4367.7	4345.3
180°	4357.2	4357.2	4357.2	4357.2	4357.2

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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	11.88	12.70	12.85	13.68	14.97	7.84	8.66	8.81	9.64	10.93
	3H	13.56	14.30	14.54	15.29	16.60	9.03	9.76	10.01	10.75	12.06
	4H	14.17	14.87	15.17	15.86	17.18	9.48	10.17	10.48	11.17	12.49
	6H	14.60	15.24	15.60	16.24	17.57	9.80	10.44	10.81	11.44	12.77
	8H	14.73	15.33	15.74	16.35	17.68	9.89	10.50	10.90	11.52	12.84
	12H	14.79	15.37	15.81	16.38	17.73	9.94	10.51	10.95	11.52	12.87
4H	2H	11.90	12.59	12.90	13.59	14.90	8.44	9.13	9.44	10.13	11.44
	3H	13.73	14.31	14.74	15.33	16.66	9.79	10.37	10.80	11.39	12.72
	4H	14.43	14.95	15.44	15.97	17.32	10.34	10.86	11.35	11.88	13.23
	6H	14.94	15.40	15.97	16.44	17.79	10.76	11.21	11.79	12.25	13.60
	8H	15.12	15.55	16.15	16.58	17.94	10.89	11.31	11.92	12.34	13.71
	12H	15.22	15.60	16.27	16.65	18.02	10.95	11.33	12.00	12.38	13.75
8H	4H	14.39	14.82	15.42	15.85	17.21	10.62	11.04	11.65	12.07	13.44
	6H	14.96	15.31	16.02	16.39	17.75	11.14	11.49	12.19	12.56	13.92
	8H	15.18	15.49	16.24	16.55	17.93	11.33	11.64	12.39	12.70	14.08
	12H	15.32	15.59	16.39	16.65	18.07	11.45	11.72	12.51	12.77	14.20
12H	4H	14.34	14.73	15.39	15.77	17.14	10.62	11.01	11.67	12.05	13.42
	6H	14.94	15.25	16.00	16.31	17.69	11.19	11.50	12.25	12.55	13.94
	8H	15.16	15.43	16.23	16.49	17.91	11.40	11.67	12.46	12.72	14.15

END OF REPORT