

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: P906944

Luminaire Tested: DFN2DIP-SQ4F0-140D140US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906944
REPORT IS A COMBINATION OF REPORTS P900199 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D140US835-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

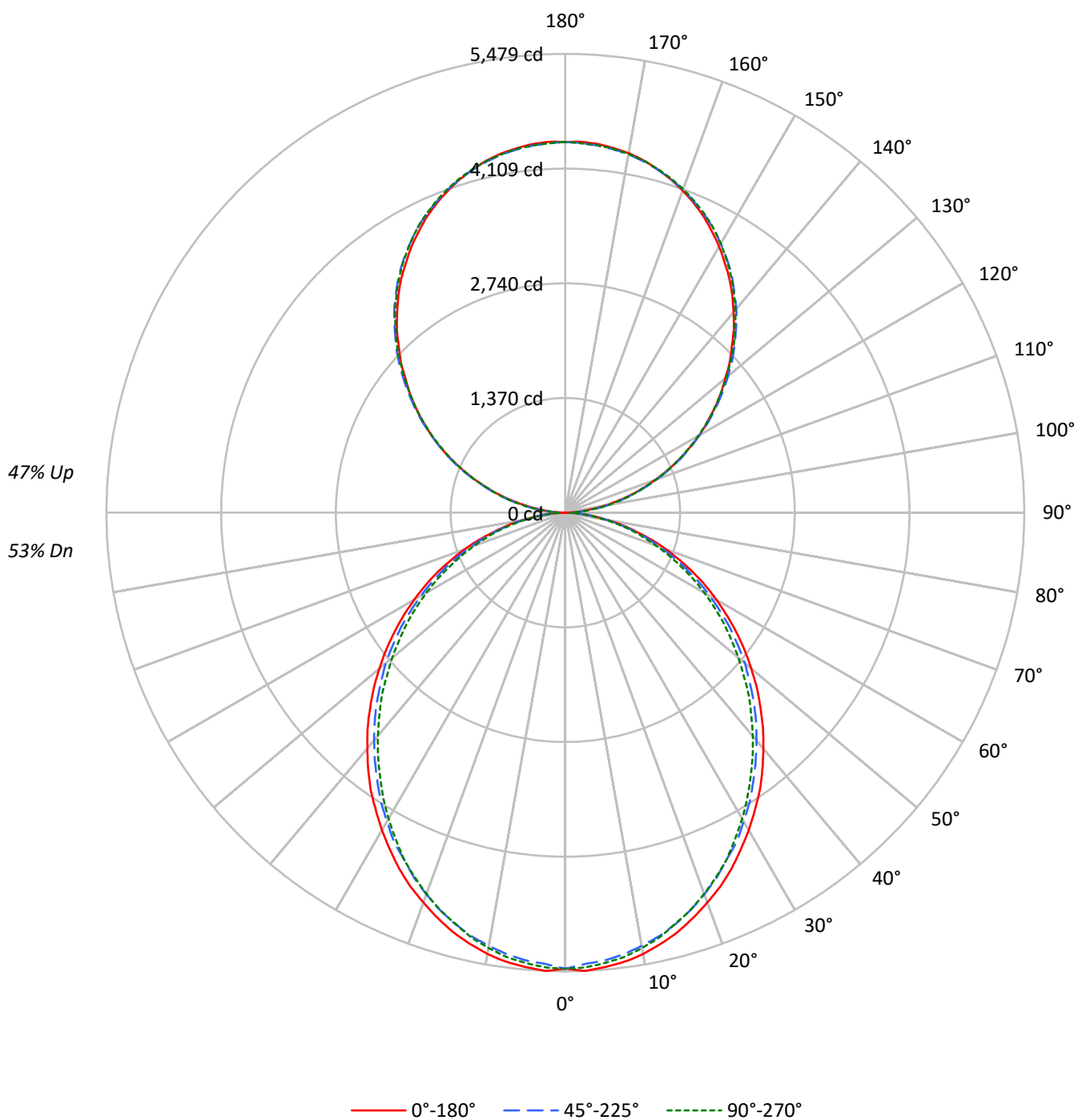
Lumens per Lamp: N/A
Luminaire Lumens: 26250.0 lumens
Efficiency: N/A
Efficacy: 105.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 249.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	108	108	108	108	100	100	100	100	85	85	85		71	71	71		59	59	59	53
1	98	94	90	87	91	87	84	81	74	72	70		63	61	59		52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58		55	52	50		46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49		49	45	42		41	38	36	32
4	75	64	56	50	69	60	52	47	51	46	41		43	39	36		36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36		39	35	31		33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31		35	31	27		30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28		32	28	24		27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24		29	25	22		25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22		27	23	19		23	20	17	15
10	47	35	28	23	44	33	26	22	29	23	20		25	21	18		21	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3822	3822	3822
5°	3828	3770	3796
10°	3797	3720	3745
15°	3741	3659	3666
20°	3666	3575	3585
25°	3591	3474	3491
30°	3497	3380	3371
35°	3408	3269	3244
40°	3298	3157	3124
45°	3188	3045	3001
50°	3069	2927	2858
55°	2943	2791	2727
60°	2802	2629	2577
65°	2647	2462	2400
70°	2450	2258	2210
75°	2178	2014	2036
80°	1850	1704	1701
85°	1337	1165	1143

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3485 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	512.7	2.0
10°-20°	1442.6	5.5
20°-30°	2120.0	8.1
30°-40°	2462.3	9.4
40°-50°	2459.3	9.4
50°-60°	2144.4	8.2
60°-70°	1585.2	6.0
70°-80°	896.9	3.4
80°-90°	249.3	0.9
90°-100°	274.0	1.0
100°-110°	870.6	3.3
110°-120°	1489.8	5.7
120°-130°	1959.3	7.5
130°-140°	2199.2	8.4
140°-150°	2156.6	8.2
150°-160°	1809.1	6.9
160°-170°	1199.7	4.6
170°-180°	419.3	1.6
0°-30°	4075.3	15.5
0°-40°	6537.6	24.9
0°-60°	11141.3	42.4
0°-90°	13872.6	52.8
90°-120°	2634.3	10.0
90°-150°	8949.3	34.1
90°-180°	12377.0	47.2
0°-180°	26250.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5448	5448	5448	5448	5448	
5°	5448	5427	5369	5411	5401	517
15°	5186	5155	5086	5107	5081	1461
25°	4693	4652	4563	4573	4563	2160
35°	4049	3997	3913	3881	3855	2529
45°	3295	3258	3180	3122	3101	2543
55°	2494	2462	2399	2336	2310	2229
65°	1682	1650	1598	1550	1524	1663
75°	880	870	843	812	822	939
85°	214	210	204	188	183	239
90°	4	48	131	123	127	25
95°	195	232	239	239	232	217
105°	804	814	822	829	829	848
115°	1495	1516	1510	1506	1495	1479
125°	2174	2208	2197	2185	2181	1943
135°	2812	2854	2862	2858	2847	2174
145°	3414	3441	3463	3467	3452	2133
155°	3904	3915	3927	3946	3934	1797
165°	4248	4244	4244	4270	4252	1198
175°	4420	4409	4401	4428	4405	420
180°	4428	4428	4428	4428	4428	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5447.5	5447.5	5447.5	5447.5	5447.5
2.5°	5479.1	5453.0	5395.2	5447.5	5437.5
5°	5447.5	5426.9	5369.1	5410.8	5400.8
7.5°	5410.8	5379.7	5321.9	5364.1	5353.5
10°	5353.5	5316.9	5254.1	5295.8	5280.2
12.5°	5274.6	5243.5	5180.7	5206.8	5196.3
15°	5185.7	5154.6	5086.2	5107.4	5081.2
17.5°	5075.7	5044.6	4976.2	5002.3	4976.2
20°	4955.1	4924.0	4850.6	4866.2	4845.6
22.5°	4835.0	4787.8	4719.4	4719.4	4708.9
25°	4693.3	4651.6	4562.7	4572.7	4562.7
27.5°	4536.0	4499.4	4431.6	4416.0	4389.9
30°	4379.3	4337.1	4258.7	4243.2	4222.0
32.5°	4211.5	4180.4	4096.4	4064.8	4043.6
35°	4049.2	3997.0	3913.0	3881.4	3855.2
37.5°	3865.8	3818.6	3734.6	3698.0	3671.8
40°	3677.4	3635.2	3551.2	3504.6	3483.4
42.5°	3494.0	3451.8	3368.4	3315.6	3284.5
45°	3295.0	3258.4	3179.5	3122.2	3101.1
47.5°	3101.1	3064.4	2980.5	2922.7	2891.6
50°	2896.6	2870.5	2797.1	2723.7	2697.6
52.5°	2697.6	2660.9	2593.1	2535.3	2498.7
55°	2493.7	2462.0	2399.2	2336.4	2310.3
57.5°	2289.1	2263.0	2194.7	2131.9	2110.7
60°	2084.6	2064.1	1990.7	1932.9	1917.3
62.5°	1885.7	1849.0	1796.7	1744.5	1723.4
65°	1681.7	1650.0	1597.8	1550.5	1524.4
67.5°	1472.2	1445.5	1398.8	1362.1	1341.0
70°	1278.2	1257.1	1209.9	1173.2	1152.6
72.5°	1079.3	1058.1	1032.0	995.4	979.8
75°	879.8	869.8	843.1	812.0	822.5
77.5°	701.9	680.8	670.2	654.7	639.1
80°	524.1	518.5	508.0	492.4	481.8
82.5°	356.2	356.2	351.2	330.1	330.1
85°	214.5	209.5	204.5	188.4	183.4
87.5°	94.5	83.9	73.4	57.8	52.2
90°	4.0	48.1	130.8	122.8	126.8
92.5°	82.8	112.1	116.1	120.1	120.1
95°	194.9	232.3	238.9	238.9	232.3
97.5°	324.4	359.1	373.8	373.8	373.8
100°	473.9	504.6	515.2	515.2	511.2
102.5°	631.4	654.1	668.8	672.8	668.8
105°	803.6	814.3	822.3	828.9	828.9
107.5°	974.4	990.5	990.5	993.1	974.4
110°	1140.0	1161.3	1161.3	1161.3	1150.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1318.8	1341.5	1337.5	1326.8	1318.8
115°	1495.0	1516.4	1509.7	1505.7	1495.0
117.5°	1669.9	1699.3	1680.6	1669.9	1659.2
120°	1846.1	1875.5	1846.1	1846.1	1834.1
122.5°	2006.3	2043.6	2025.0	2014.3	2006.3
125°	2174.5	2207.8	2197.1	2185.1	2181.1
127.5°	2338.6	2380.0	2365.3	2349.3	2338.6
130°	2492.1	2540.2	2533.5	2525.5	2510.8
132.5°	2664.3	2701.7	2704.4	2685.7	2675.0
135°	2812.5	2853.9	2861.9	2857.9	2847.2
137.5°	2978.0	3011.4	3018.1	3015.4	2999.4
140°	3123.5	3156.9	3175.6	3175.6	3160.9
142.5°	3273.0	3306.4	3317.1	3321.1	3306.4
145°	3414.5	3441.2	3462.6	3466.6	3451.9
147.5°	3541.3	3574.7	3590.7	3597.4	3582.7
150°	3672.1	3694.8	3709.5	3721.5	3709.5
152.5°	3788.3	3811.0	3829.7	3844.3	3829.7
155°	3904.4	3915.1	3927.1	3945.8	3933.8
157.5°	4004.5	4012.5	4019.2	4045.9	4027.2
160°	4094.0	4102.0	4106.0	4128.7	4112.6
162.5°	4176.7	4176.7	4180.7	4206.1	4187.4
165°	4247.5	4243.5	4243.5	4270.2	4251.5
167.5°	4311.5	4299.5	4299.5	4326.2	4307.5
170°	4359.6	4348.9	4344.9	4371.6	4348.9
172.5°	4393.0	4382.3	4378.3	4405.0	4382.3
175°	4419.7	4409.0	4401.0	4427.7	4405.0
177.5°	4434.3	4423.7	4415.7	4438.3	4415.7
180°	4427.7	4427.7	4427.7	4427.7	4427.7

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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	12.20	13.09	13.13	14.04	15.27	11.76	12.64	12.69	13.59	14.82
	3H	13.87	14.66	14.81	15.62	16.88	13.38	14.17	14.32	15.13	16.39
	4H	14.46	15.21	15.42	16.18	17.44	13.97	14.72	14.92	15.68	16.94
	6H	14.86	15.56	15.83	16.53	17.80	14.36	15.06	15.33	16.03	17.30
	8H	14.97	15.63	15.95	16.62	17.89	14.47	15.13	15.45	16.12	17.39
	12H	15.02	15.65	16.00	16.63	17.93	14.51	15.14	15.49	16.12	17.42
4H	2H	12.67	13.42	13.63	14.38	15.64	12.31	13.06	13.28	14.03	15.29
	3H	14.54	15.17	15.51	16.16	17.44	14.13	14.76	15.11	15.75	17.03
	4H	15.26	15.83	16.24	16.82	18.12	14.83	15.41	15.82	16.40	17.70
	6H	15.78	16.27	16.77	17.28	18.58	15.35	15.84	16.34	16.85	18.15
	8H	15.93	16.39	16.93	17.40	18.71	15.49	15.96	16.49	16.96	18.27
	12H	16.01	16.43	17.02	17.45	18.76	15.56	15.98	16.57	17.00	18.31
8H	4H	15.46	15.92	16.45	16.92	18.24	15.08	15.54	16.08	16.55	17.86
	6H	16.09	16.48	17.12	17.52	18.83	15.71	16.09	16.73	17.14	18.45
	8H	16.32	16.66	17.35	17.69	19.02	15.93	16.26	16.95	17.29	18.62
	12H	16.45	16.75	17.49	17.78	19.15	16.04	16.34	17.08	17.37	18.74
12H	4H	15.44	15.86	16.46	16.88	18.20	15.08	15.49	16.09	16.51	17.83
	6H	16.12	16.46	17.15	17.49	18.82	15.75	16.09	16.78	17.12	18.45
	8H	16.37	16.67	17.40	17.69	19.07	15.99	16.29	17.02	17.31	18.69