

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: P920586

Luminaire Tested: DFN2DIP-SQ4F0-140D140US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920586
REPORT IS A COMBINATION OF REPORTS P900200 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D140US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

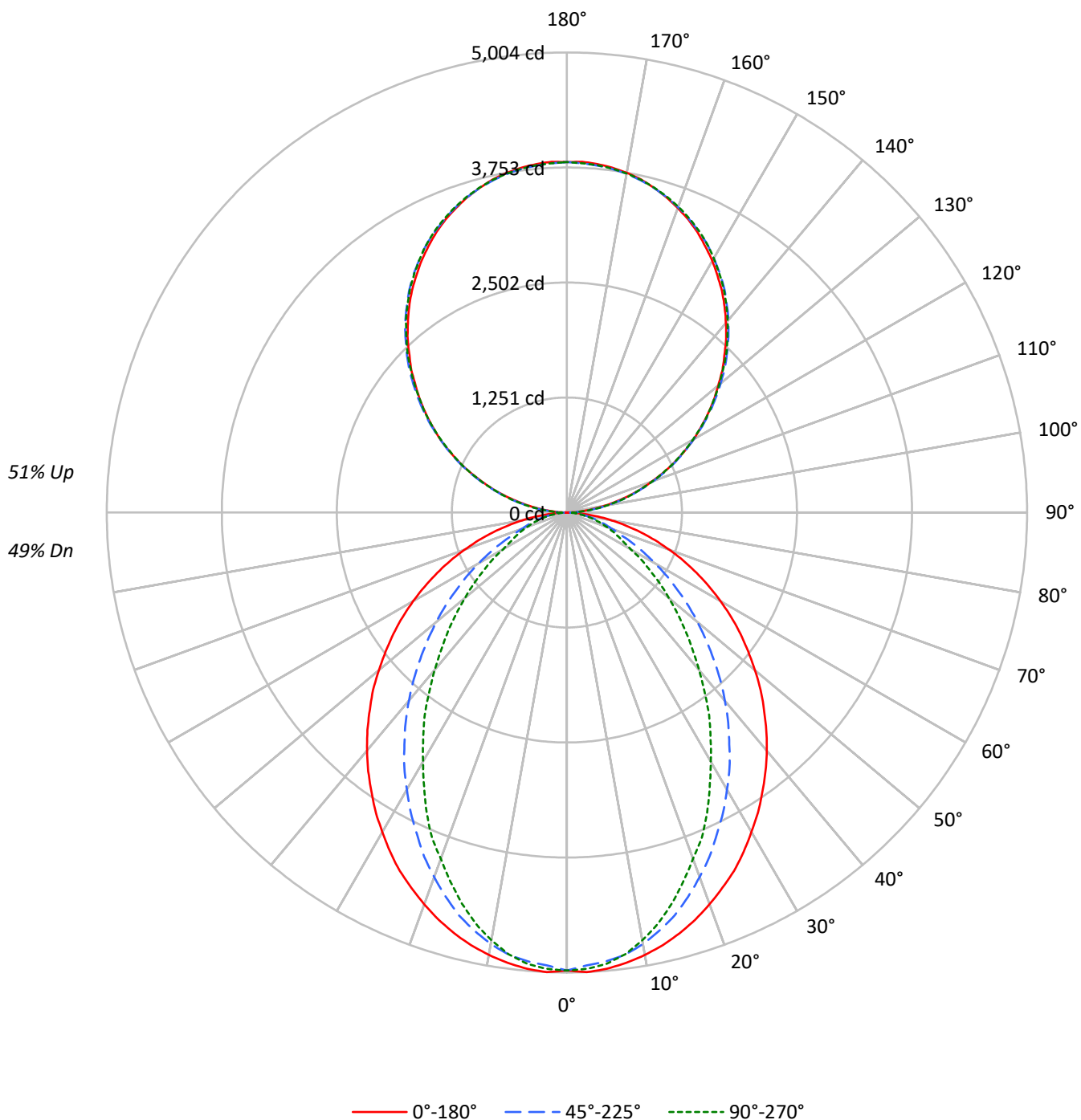
Lumens per Lamp: N/A
Luminaire Lumens: 20913.7 lumens
Efficiency: N/A
Efficacy: 83.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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
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°	3496	3496	3496
5°	3501	3441	3463
10°	3467	3374	3351
15°	3419	3263	3178
20°	3356	3110	2965
25°	3291	2938	2759
30°	3204	2762	2498
35°	3119	2573	2269
40°	3032	2377	2005
45°	2932	2159	1767
50°	2828	1939	1533
55°	2719	1705	1309
60°	2593	1459	1079
65°	2449	1209	972
70°	2273	976	881
75°	2053	862	804
80°	1734	725	701
85°	1207	488	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3001 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	466.9	2.2
10°-20°	1281.8	6.1
20°-30°	1799.5	8.6
30°-40°	1961.6	9.4
40°-50°	1802.9	8.6
50°-60°	1415.9	6.8
60°-70°	921.6	4.4
70°-80°	474.4	2.3
80°-90°	132.0	0.6
90°-100°	235.9	1.1
100°-110°	749.5	3.6
110°-120°	1282.7	6.1
120°-130°	1686.9	8.1
130°-140°	1893.5	9.1
140°-150°	1856.8	8.9
150°-160°	1557.6	7.4
160°-170°	1033.0	4.9
170°-180°	361.0	1.7
0°-30°	3548.2	17.0
0°-40°	5509.8	26.3
0°-60°	8728.7	41.7
0°-90°	10256.7	49.0
90°-120°	2268.1	10.8
90°-150°	7705.3	36.8
90°-180°	10657.0	51.0
0°-180°	20913.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4982	4982	4982	4982	4982	
5°	4982	4959	4900	4941	4928	472
15°	4738	4689	4536	4450	4405	1335
25°	4301	4157	3859	3675	3607	1978
35°	3706	3476	3080	2795	2696	2320
45°	3030	2728	2254	1934	1826	2340
55°	2304	1952	1465	1195	1109	2059
65°	1556	1190	784	631	618	1542
75°	829	514	361	329	325	877
85°	194	99	86	86	86	222
90°	3	41	113	106	109	21
95°	168	200	206	206	200	187
105°	692	701	708	714	714	730
115°	1287	1306	1300	1296	1287	1273
125°	1872	1901	1892	1881	1878	1673
135°	2422	2457	2464	2461	2451	1872
145°	2940	2963	2981	2985	2972	1837
155°	3362	3371	3381	3397	3387	1547
165°	3657	3654	3654	3677	3660	1032
175°	3805	3796	3789	3812	3793	362
180°	3812	3812	3812	3812	3812	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4981.9	4981.9	4981.9	4981.9	4981.9
2.5°	5004.4	4981.9	4932.1	4977.6	4968.5
5°	4981.9	4959.4	4900.5	4941.3	4927.8
7.5°	4941.3	4914.4	4851.3	4869.0	4846.6
10°	4887.2	4855.6	4765.7	4751.8	4725.0
12.5°	4819.7	4779.1	4657.1	4630.3	4580.6
15°	4738.4	4688.6	4535.6	4450.0	4405.0
17.5°	4643.7	4571.5	4382.0	4283.0	4210.8
20°	4535.6	4445.2	4219.9	4107.5	4008.0
22.5°	4418.4	4314.6	4053.0	3899.9	3832.5
25°	4301.2	4156.7	3859.3	3674.6	3606.6
27.5°	4161.5	4008.0	3678.9	3467.0	3363.2
30°	4012.8	3841.1	3480.4	3250.8	3128.8
32.5°	3868.3	3660.7	3291.4	3020.7	2907.8
35°	3706.2	3476.1	3079.5	2795.4	2695.9
37.5°	3548.3	3300.0	2881.0	2569.6	2457.2
40°	3381.4	3111.1	2673.4	2353.5	2236.3
42.5°	3210.1	2921.7	2466.3	2132.4	2020.0
45°	3029.8	2727.5	2254.4	1933.9	1825.8
47.5°	2858.5	2538.6	2051.6	1731.1	1632.1
50°	2669.1	2349.1	1853.0	1541.7	1447.4
52.5°	2484.0	2145.8	1663.6	1366.1	1280.5
55°	2303.7	1952.1	1465.2	1194.9	1109.2
57.5°	2119.0	1758.3	1289.6	1037.1	964.8
60°	1929.6	1568.9	1104.5	874.9	802.6
62.5°	1745.0	1384.3	946.7	730.4	694.6
65°	1555.6	1190.1	784.5	631.4	617.5
67.5°	1375.2	1009.8	631.4	554.4	541.0
70°	1185.8	834.2	522.8	477.9	459.7
72.5°	1005.5	671.6	437.2	401.3	392.3
75°	829.4	513.8	360.7	329.1	324.8
77.5°	653.9	365.0	284.1	266.0	256.8
80°	491.3	261.7	216.2	198.5	198.5
82.5°	342.5	176.0	148.8	139.7	139.7
85°	193.7	99.0	85.6	85.6	85.6
87.5°	72.2	35.9	35.9	31.6	31.6
90°	3.4	41.4	112.6	105.7	109.2
92.5°	71.3	96.5	100.0	103.4	103.4
95°	167.8	200.0	205.7	205.7	200.0
97.5°	279.3	309.2	321.8	321.8	321.8
100°	408.0	434.5	443.6	443.6	440.1
102.5°	543.6	563.2	575.8	579.3	575.8
105°	691.9	701.1	708.0	713.7	713.7
107.5°	839.0	852.8	852.8	855.1	839.0
110°	981.5	999.9	999.9	999.9	990.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1135.5	1155.0	1151.6	1142.4	1135.5
115°	1287.2	1305.6	1299.8	1296.4	1287.2
117.5°	1437.8	1463.1	1447.0	1437.8	1428.6
120°	1589.5	1614.8	1589.5	1589.5	1579.2
122.5°	1727.4	1759.5	1743.5	1734.3	1727.4
125°	1872.2	1900.9	1891.7	1881.4	1877.9
127.5°	2013.5	2049.2	2036.5	2022.7	2013.5
130°	2145.7	2187.1	2181.3	2174.5	2161.8
132.5°	2294.0	2326.2	2328.5	2312.4	2303.2
135°	2421.6	2457.2	2464.1	2460.6	2451.4
137.5°	2564.1	2592.8	2598.6	2596.3	2582.5
140°	2689.3	2718.1	2734.2	2734.2	2721.5
142.5°	2818.0	2846.8	2856.0	2859.5	2846.8
145°	2939.9	2962.9	2981.3	2984.7	2972.1
147.5°	3049.1	3077.8	3091.6	3097.4	3084.7
150°	3161.7	3181.2	3193.9	3204.2	3193.9
152.5°	3261.7	3281.3	3297.4	3309.9	3297.4
155°	3361.7	3370.9	3381.2	3397.3	3387.0
157.5°	3447.9	3454.8	3460.5	3483.5	3467.4
160°	3524.9	3531.8	3535.3	3554.8	3540.9
162.5°	3596.1	3596.1	3599.6	3621.4	3605.3
165°	3657.1	3653.6	3653.6	3676.6	3660.5
167.5°	3712.2	3701.9	3701.9	3724.8	3708.7
170°	3753.6	3744.4	3740.9	3763.9	3744.4
172.5°	3782.4	3773.2	3769.7	3792.7	3773.2
175°	3805.4	3796.1	3789.3	3812.2	3792.7
177.5°	3817.9	3808.8	3801.9	3821.4	3801.9
180°	3812.2	3812.2	3812.2	3812.2	3812.2

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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	11.42	12.24	12.39	13.22	14.51	7.38	8.20	8.35	9.18	10.47
	3H	13.10	13.83	14.08	14.82	16.13	8.57	9.30	9.55	10.29	11.60
	4H	13.71	14.40	14.70	15.40	16.72	9.02	9.71	10.01	10.71	12.02
	6H	14.13	14.77	15.14	15.77	17.10	9.34	9.98	10.34	10.98	12.31
	8H	14.26	14.87	15.27	15.89	17.21	9.43	10.04	10.44	11.05	12.38
	12H	14.33	14.90	15.34	15.91	17.26	9.47	10.05	10.49	11.06	12.41
4H	2H	11.43	12.13	12.44	13.12	14.44	7.97	8.67	8.98	9.66	10.98
	3H	13.27	13.84	14.28	14.87	16.20	9.32	9.90	10.34	10.93	12.26
	4H	13.96	14.49	14.98	15.51	16.86	9.87	10.40	10.89	11.42	12.77
	6H	14.48	14.93	15.51	15.97	17.33	10.29	10.75	11.32	11.78	13.14
	8H	14.66	15.08	15.69	16.11	17.48	10.42	10.85	11.45	11.88	13.24
	12H	14.76	15.14	15.80	16.18	17.56	10.49	10.87	11.53	11.92	13.29
8H	4H	13.93	14.35	14.96	15.38	16.75	10.15	10.58	11.19	11.61	12.98
	6H	14.50	14.85	15.55	15.92	17.29	10.67	11.02	11.73	12.10	13.46
	8H	14.72	15.03	15.78	16.09	17.47	10.87	11.17	11.93	12.23	13.62
	12H	14.86	15.13	15.93	16.18	17.61	10.99	11.26	12.05	12.31	13.73
12H	4H	13.88	14.26	14.93	15.31	16.68	10.16	10.54	11.21	11.59	12.96
	6H	14.48	14.78	15.54	15.84	17.22	10.72	11.03	11.79	12.09	13.47
	8H	14.70	14.97	15.76	16.02	17.45	10.94	11.21	12.00	12.26	13.69